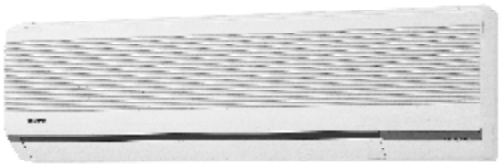
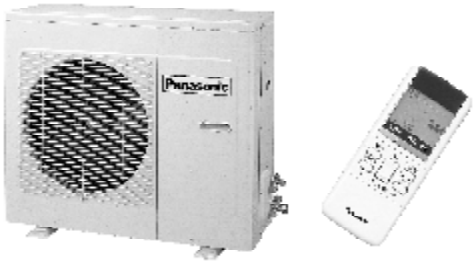
Order No: MAC0105012C3

Service Manual

Room Air Conditioner

CS-C182KR CU-C182KR / CS-C242KR CU-C242KR





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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

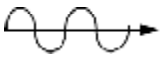
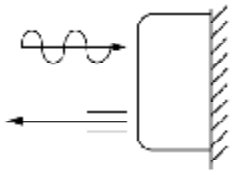
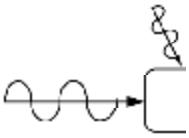
1. Features

- High Efficiency
- High Efficiency Airflow Circuit
- Compact Design
- Removable and Washable Front Panel
- Auto Restart after Power Failure

- Long Piping up to 25m
- Deodorizing Air Filter
- Deodorizing Control during operation

2. Functions

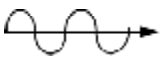
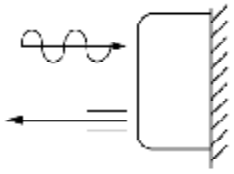
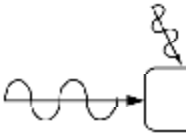
3. Product Specifications

		Unit	CS-C182KR	CU-C182
Cooling Capacity		kW Btu/h	5.40 - 5.35 18,400 - 18,200	
Moisture Removal		l/h Pint/h	2.9 6.1	
Power Source		Phase V Cycle	Single 240 - 230 50	
Airflow Method		OUTLET INTAKE 	SIDE VIEW 	TOP VII 
Air Volume	Indoor Air (Lo)	m3/min (cfm)	11.2 - 10.7 (400 - 380)	—
	Indoor Air (Me)	m3/min (cfm)	13.0 - 12.6 (460 - 440)	—
	Indoor Air (Hi)	m3/min (cfm)	13.7 - 13.4 (480 - 470)	—
	Outdoor Air	m3/min (cfm)	—	12.6 - 11.6 (4
Noise Level		dB (A)	High 43 - 43, Low 38 - 38	High 56

			(Power Level dB)	(56)	(71)
Electrical Data	Input		W	2,220 - 2,130	
	Running Current		A	10.7 - 10.3	
	COP		W/W	2.43 - 2.51	
	Starting Current		A	34.6	
Piping Connection Port (Flare piping)			inch inch	G ; Half Union 1/2” L ; Half Union 1/4”	G ; 3-way va L ; 3-way va
Pipe Size (Flare piping)			inch inch	G (gas side) ; 1/2” L (liquid side) ; 1/4”	G (gas side L (liquid sid
Drain Hose	Inner diameter		mm	16	—
	Length		m	0.75	—
Power Cord Length Number of core-wire			m	2.1 3 (1.5 mm2)	— —
Dimensions		Height	inch (mm)	11 - 7/16 (290)	26 - 31/32
		Width	inch (mm)	38 - 19/32 (980)	31 - 1/2 (
		Depth	inch (mm)	7 - 11/16 (195)	11 - 13/16
Net Weight			lb (kg)	29 (13)	134 (6
Compressor		Type		—	Rotary (1 cy rolling pist
	Motor	Type		—	Induction (2
	Rated	Output	KW	—	1.7
Air Circulation		Type		Cross-flow Fan	Propeller
		Material		AS + Glass Fiber 30%	AES + Glass F
	Motor	Type		Induction (4-poles)	Induction (4
		Input	W	51.1 - 47.7	155.4 - 14
		Rated Output	W	20	72
	Fan Speed	Low	rpm	980 - 940	690 - 6
		Medium	rpm	1,140 - 1,105	—
		High	rpm	1,200 - 1,175	1,060 - 1
Heat Exchanger	Description			Evaporator	Conden
	Tube material			Copper	Coppe
	Fin material			Aluminium	Alumini
	Fin Type			Slot Fin	Corrugate
	Row / Stage			(Plate fin configuration, forced dra 2 × 14	2 × 3
	FPI			21	18
	Size (W × H × L)		mm	732.0 × 294.0 × 25.4	775.2 × 65 754.5

Refrigerant Control Device			—	Capillary
Refrigeration Oil		(cm3)	—	SUNISO 4G ATMOS M6
Refrigerant (R-22)		g (oz)	—	1,140 (4
Thermostat			Electronic Control	Mechanical
Protection Device			—	Inner Prot
Capillary Tube	Length	mm	—	611
	Flow Rate	l/min	—	27.0
	Inner Diameter	mm	—	2.1
Air Filter	Material Style		P.P. Honeycomb	—
Compressor Capacitor		μF, VAC	—	35 μF, 37
Fan Motor Capacitor		μF, VAC	1.5 μF, 400VAC	3.5 μF, 4(

- Specifications are subject to change without notice for further improvement.

		Unit	CS-C242KR	CU-C242
Cooling Capacity		kW Btu/h	6.65 - 6.60 22,700 - 22,500	
Moisture Removal		l/h Pint/h	3.8 8.0	
Power Source		Phase V Cycle	Single 240 - 230 50	
Airflow Method		OUTLET INTAKE 	SIDE VIEW 	TOP VII 

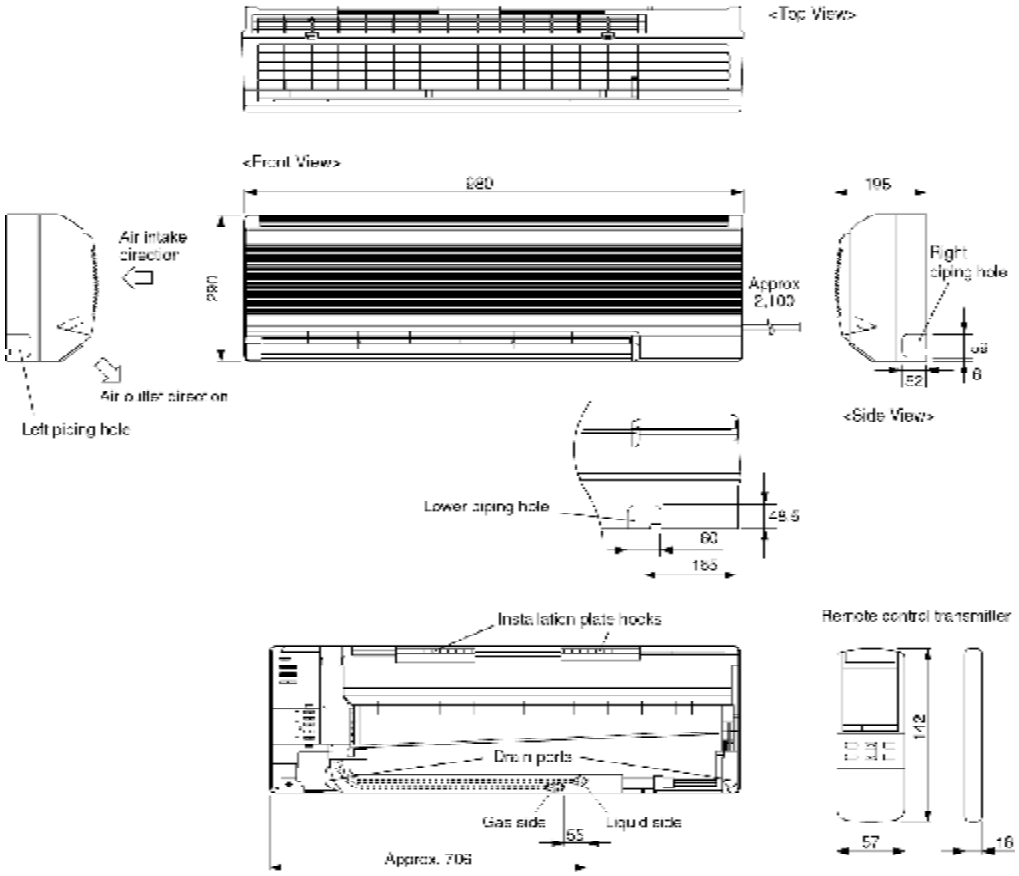
Air Volume	Indoor Air (Lo)		m^3/min (cfm)	13.2 - 12.8 (460 - 450)	—
	Indoor Air (Me)		m^3/min (cfm)	14.8 - 14.5 (520 - 510)	—
	Indoor Air (Hi)		m^3/min (cfm)	15.7 - 15.5 (550 - 540)	—
	Outdoor Air		m^3/min (cfm)	—	14.4 - 14.0 (5
Noise Level			dB (A)	High 47 - 47, Low 41 - 41	High 61
			(Power Level dB)	(60)	(76)
Electrical Data	Input		W	3,050 - 2,930	
	Running Current		A	15.6 - 15.5	
	COP		W/W	2.18 - 2.25	
	Starting Current		A	40.9	
Piping Connection Port			inch	G ; Half Union 5/8”	G ; 3-way va
(Flare piping)			inch	L ; Half Union 1/4”	L ; 3-way va
Pipe Size			inch	G (gas side) ; 5/8”	G (gas side
(Flare piping)			inch	L (liquid side) ; 1/4”	L (liquid sid
Drain	Inner diameter		mm	16	—
Hose	Length		m	0.75	—
Power Cord Length			m	2.1	—
Number of core-wire				3 (2.5 mm^2)	—
Dimensions		Height	inch (mm)	11 - 7/16 (290)	26 - 31/32
		Width	inch (mm)	38 - 19/32 (980)	31 - 1/2 (
		Depth	inch (mm)	7 - 11/16 (195)	11 - 13/16
Net Weight			lb (kg)	31 (14)	141 (6
Compressor		Type		—	Rotary (1 cy rolling pist
	Motor	Type		—	Induction (2
	Rated	Output	KW	—	2.2

Air Circulation		Type		Cross-flow Fan	Propeller
		Material		AS + Glass Fiber 30%	AES + Glass F
	Motor	Type		Induction (4-poles)	Induction (4
		Input	W	59.1 - 56.7	189.8 - 18
		Rated Output	W	30	108
	Fan Speed	Low	rpm	1,110 - 1,075	755 - 7
		Medium	rpm	1,245 - 1,220	—
		High	rpm	1,320 - 1,300	1,210 - 1
Heat Exchanger	Description			Evaporator	Conden
	Tube material			Copper	Coppe
	Fin material			Aluminium	Alumini
	Fin Type			Slot Fin	Corrugate
	Row / Stage			(Plate fin configuration, forced dra	
				2 × 14	2 × 26
	FPI			21	18
	Size (W × H × L)		mm	732.0 × 294.0 × 25.4	769.2 × 66 732.9
Refrigerant Control Device				—	Capillary
Refrigeration Oil			(cm^3)	—	SUNISO 4G ATMOS M60
Refrigerant (R-22)			g (oz)	—	1,960 (6
Thermostat				Electronic Control	Mechanical
Protection Device				—	Inner Prot
Capillary Tube	Length		mm	—	960
	Flow Rate		l/min	—	23.0
	Inner Diameter		mm	—	2.4
Air Filter	Material			P.P.	—
	Style			Honeycomb	
Compressor Capacitor			μF, VAC	—	50 μF, 37
Fan Motor Capacitor			μF, VAC	1.5 μF, 400VAC	3.5 μF, 45

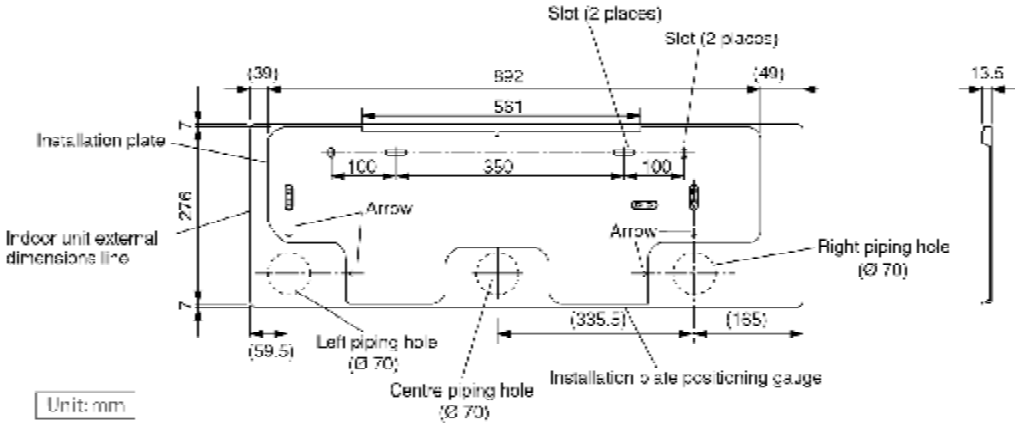
- Specifications are subject to change without notice for further improvement.

4. Dimensions

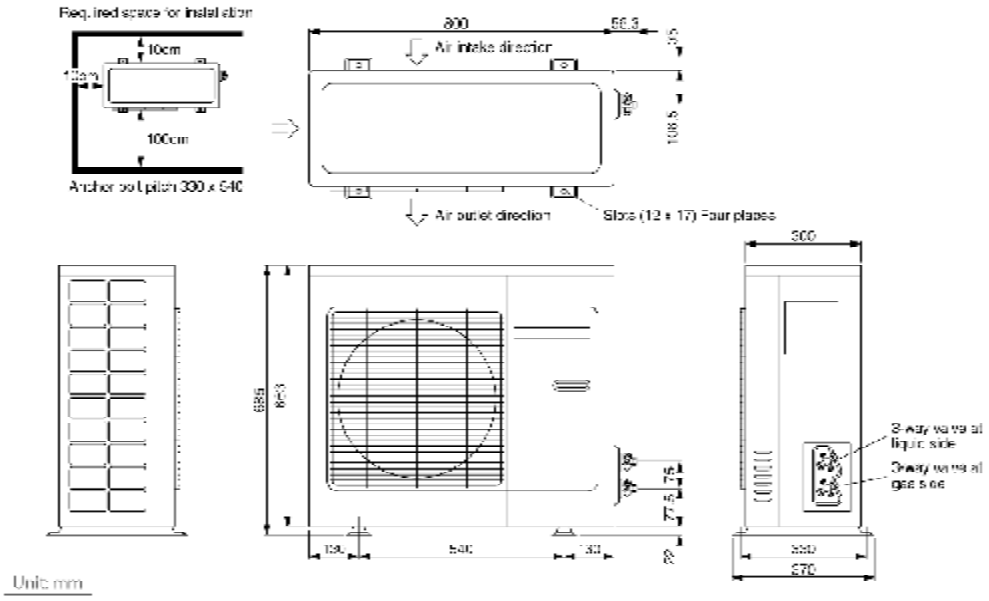
CS-C182KR / CS-C242KR



Relative position between the indoor unit and the installation plate <Front View>

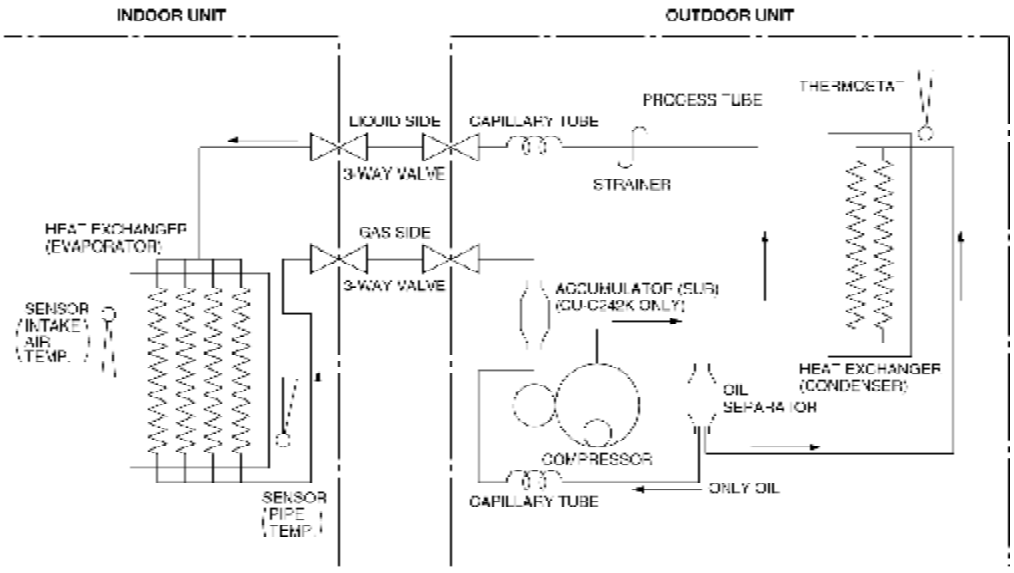


CU-C182KR / CU-C242KR



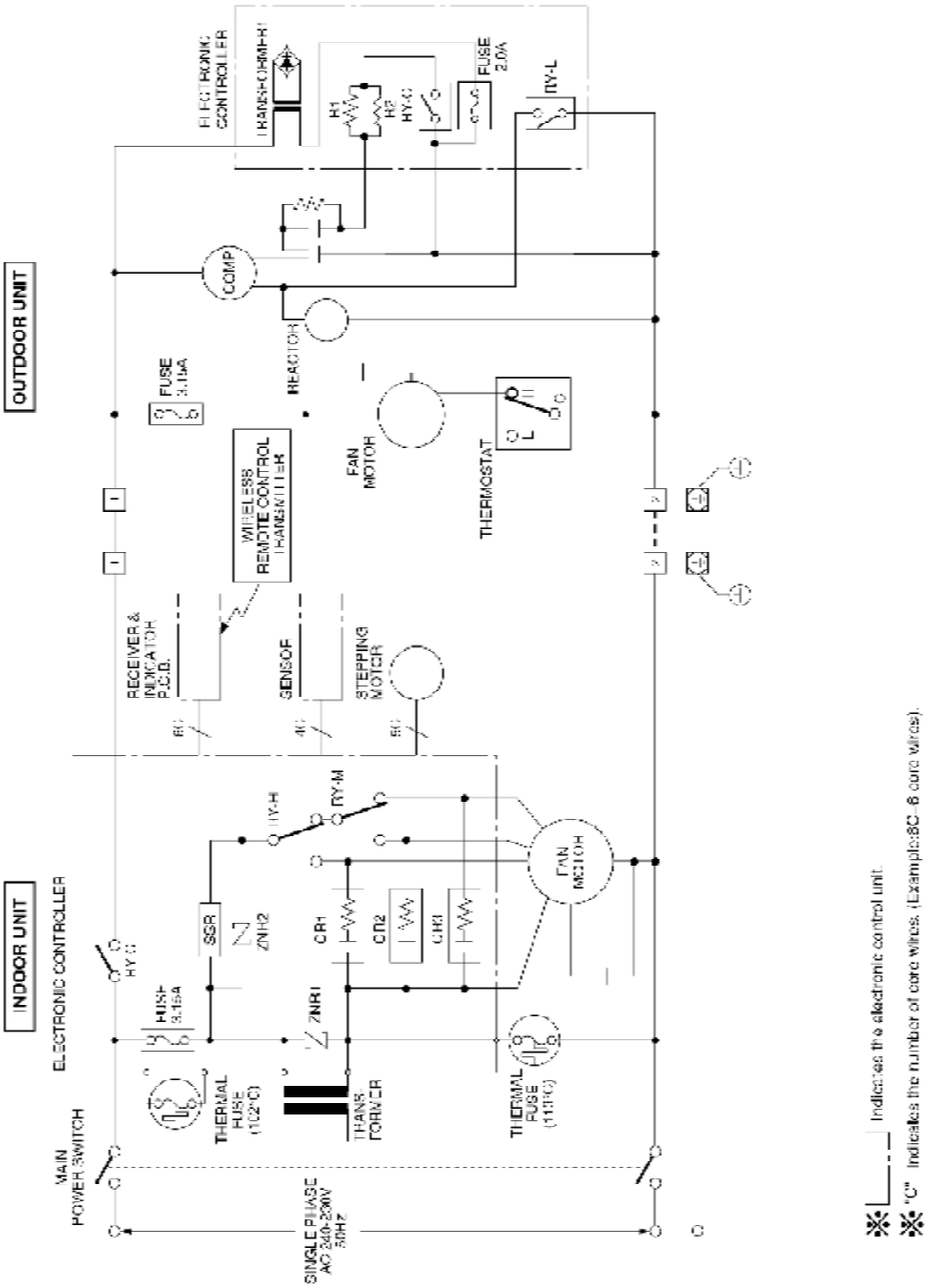
5. Refrigeration Cycle Diagram

CS/CU-C182KR
CS/CU-C242KR



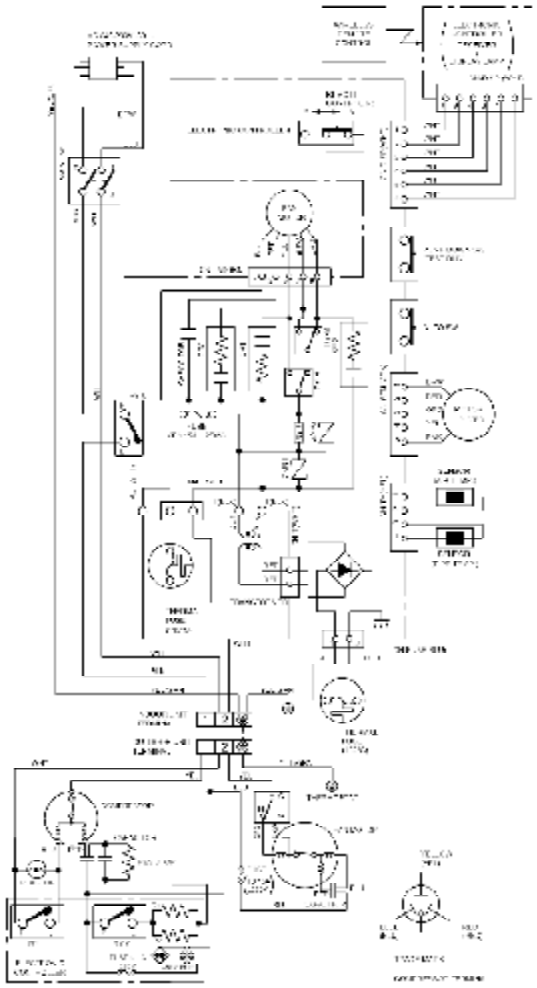
6. Block Diagram

CS-C182KR / CU-C182KR
CS-C242KR / CU-C242KR



7. Wiring Diagram

CS-C182KR / CU-C182KR
CS-C242KR / CU-C242KR



REMARKS:

BLU	**: BLUE**
BRW	**: BROWN**
BLK	**: BLACK**
WHT	**: WHITE**
RED	**: RED**
ORG	**: ORANGE**
PNK	**: PINK**
YEL/ GRN	**: YELLOW/GREEN**
GRY	**: GRAY**

Resistance of Indoor Fan Motor Windings

	CS-C182KR	CS-C242KR
CONNECTION	CWA92270 (Ω)	CWA92287 (Ω)
YELLOW - BLUE	357.0	176.0
YELLOW - BROWN	41.7	70.4
BROWN - ORANGE	63.1	71.7
ORANGE - RED	249.6	148.7

Resistance of Outdoor Fan Motor Windings

	CU-C182KR	CU-C242KR
CONNECTION	CWA92272 (Ω)	CWA92271 (Ω)
BLUE - BROWN	79.5	46.8
BROWN - ORANGE	65.1	64.6
RED - BROWN	70.8	73.7

Resistance of Compressor Windings

	CU-C182KR	CU-C242KR
CONNECTION	2JS350D3AA02 (Ω)	2JS464D3AA02 (Ω)
C-R	0.980	0.888
C-S	3.929	2.328

8. Operation Details

8.1. Cooling Mode Operation

Cooling in operation according to Remote Control setting.

Time Delay Safety Control (3 minutes)

- When the compressor is stopped by Power Switch, Remote Control or there is a power failure, it restarts after 3 minutes when the Power Switch, Remote Control is turned ON or the power supply is resumed.

- When the setting temperature is reached during cooling operation, the compressor stops and it will not start for 3 minutes.

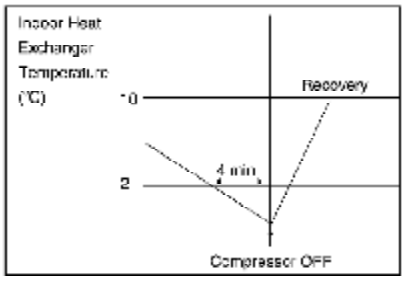
7 minutes Time Save Control

- The compressor will start automatically if it has stopped for 7 minutes even if the room temperature is below the compressor ON temperature.

Anti-Freezing Control

- If the temperature of the indoor heat exchanger falls continuously below 2°C for 4 minutes, the compressor turns off to protect the indoor heat exchanger from freezing. The fan speed setting remains the same.
- Compressor recommences when the indoor heat exchanger temperature rises to 10°C (Recovery).

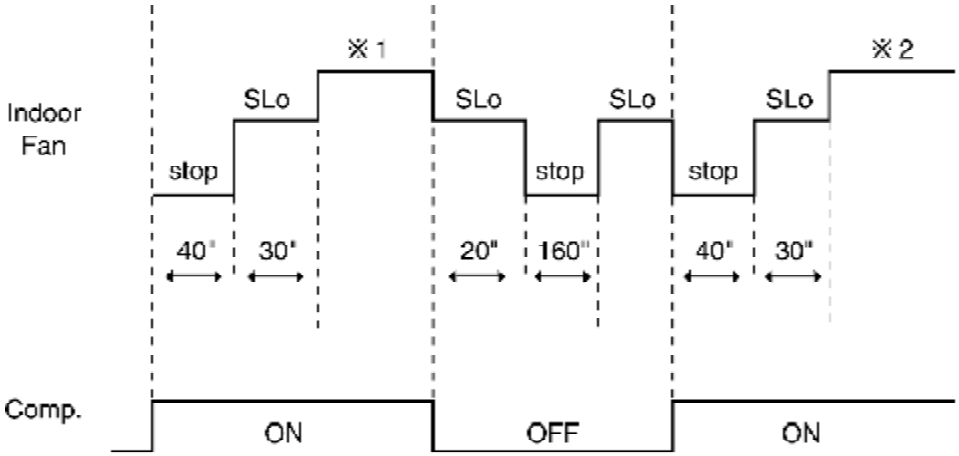
※ 3 minutes waiting of Time Delay Safety Control is valid for Cooling Operation.



Automatic Fan Speed Mode

When Automatic Fan Speed is selected at Remote Control during cooling operation.

- Fan speed rotates in the range of Hi to Me.
- Deodorizing Control.

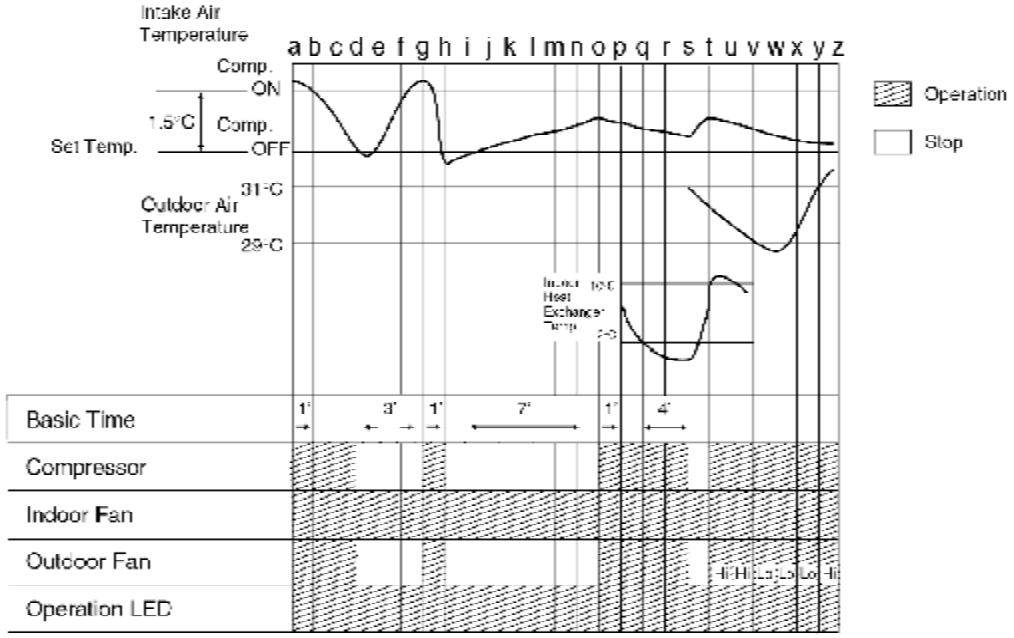


※ 1 Fan Speed is Hi until the compressor stops (when the room temperature reaches setting temperature).

※ 2 Fan Speed is Me after the compressor restarts.

※ SLo: Indoor Fan rotates at 4-second intervals at low speed.

Cooling Operation Time Diagram



<Description of operation>

d – g : Time Delay Safety Control (waiting for 3 minutes)
g – h : 60 sec. Forced Operation
h – o : 7 min. Time Save Control
q – t : Anti Freezing Control
v – y : Outdoor Fan Control

8.2. Soft Dry Mode Operation

- The unit starts cooling operation until the room temperature reaches the setting temperature set on the Remote Control, and then Soft Dry operation will start.
- During Soft Dry operation, the Indoor Fan will operate and stop at 4 -second intervals at low speed.
- The operation will be switched on and off for up to 10 minutes “ON” and 6 minutes “OFF”. Once Soft Dry operation is turned off, it stops for 6 minutes.

Time Delay Safety Control

- Once the compressor stops, it will not start for 3 minutes during Cooling operation.

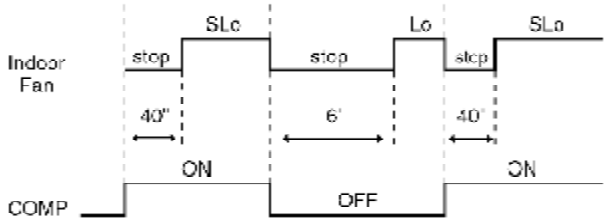
Anti-Freezing Control

- Same as Anti-Freezing Control for Cooling Mode operation. (For Soft Dry region, 6 minutes waiting is valid during compressor stops.) /

Automatic Fan Speed Mode

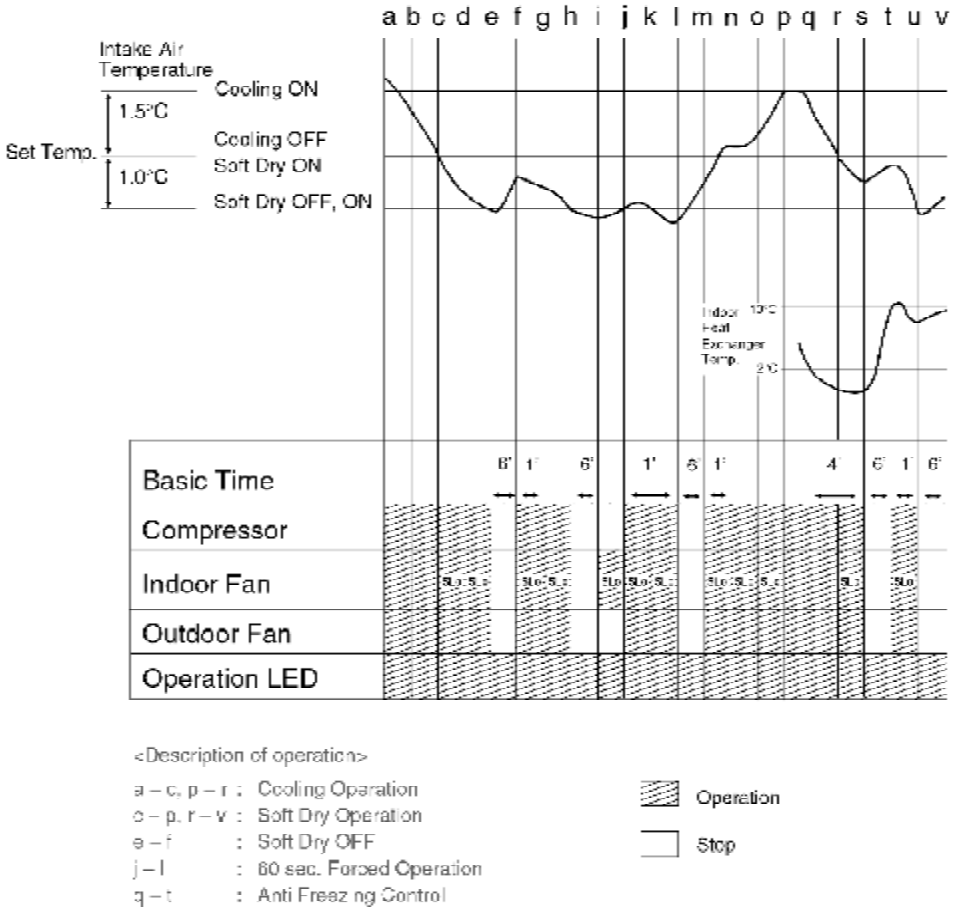
When Automatic Fan Speed is selected at Remote Control during Soft Dry operation.

- Fan speed rotates at SLo and Lo speed.
- Deodorizing Control.



※ SLo: Indoor Fan rotates at 4-second intervals at low speed.

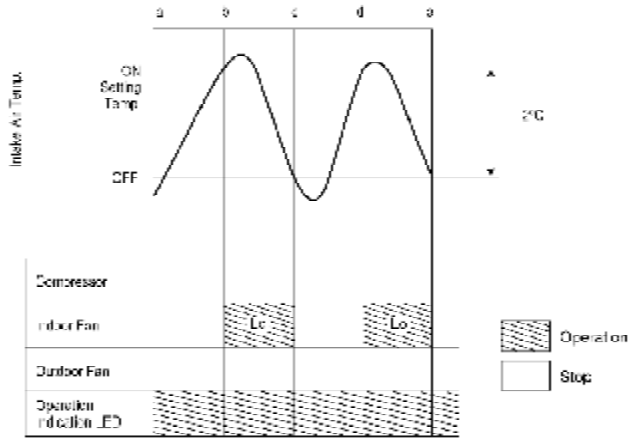
Soft Dry Operation Time Diagram


a b c d e f g h i j k l m n o p q r s t u v
Intake Air Temperature
Cooling ON
1.5°C
Set Temp.
Cooling OFF
Soft Dry ON
1.0°C
Soft Dry OFF, ON
Indoor Heat Exchanger Temp.
Basic Time
Compressor
Indoor Fan
Outdoor Fan
Operation LED
<Description of operation>
a – c, p – r : Cooling Operation
c – p, r – v : Soft Dry Operation
e – f : Soft Dry OFF
j – l : 60 sec. Forced Operation
q – t : Anti Freezing Control
Operation
Stop

8.3. Air Circulation Mode Operation

- When the temperature near the ceiling reaches the setting temperature, Air Circulation Mode operation commences at low airflow volume. It stops when the temperature drops to 2°C below the setting temperature.

Air Circultation Mode Operation Time Diagram



8.4. Automatic Mode Operation

Standard for Determining Operation Mode

	Setting Temperature (Standard)
Cooling Mode	25°C
Soft Dry Mode	22°C

(a) Indoor fan operates at Lo fan speed for 20 seconds.

(b) After judging indoor air temperature, the operation mode is determined and operation continu mode determined.

(c) After the operation mode has been determined, the mode does not change. However, Soft Dry operation includes Cooling mode operation.

(d) Room temperature adjustment.
The following are added to the setting temperature specified as above.

	Cooling	Soft Dry
Higher → +2°C	27°C	24°C
Standard → ±0°C	25°C	22°C
Lower → −2°C	23°C	20 °C

(e) If the value for R32 is changed to 47K (Normal 10K), the mode judging temperature and standa temperature is increased by 2°C.

	Setting Temperature (Standard)
Cooling Mode	27°C
Soft Dry Mode	24°C

8.5. Sleep Mode Auto Operation

Cooling or Soft Dry Operation

When you press the SLEEP Mode, the following movement will start to avoid overcooling.

- **When the room temperature reaches the setting temperature or after 1 hour of operation, sleep shift operation starts and the airflow volume will automatically change to low.**
- **The setting temperature will be risen by 0.5°C at the start of operation and by 0.5°C one hour later.**
- **The operation will stop after 8 hours.**
- **When using together with the Timer, the ON-Timer has priority.**

8.6. Auto Restart Control

- **If there is a power failure, operation will be automatically restarted when the power is resumed.**
  It will start with previous operation mode and airflow direction.
  (Time Delay Safety Control is valid)
- **Auto Restart Control is not available when Timer or Sleep Mode is set.**
- **This control can be omitted by cutting the jumper wire J2. (Refer Circuit Diagram)**

8.7. Indoor Fan Speed Control

- **Auto Fan Speed Control**
  When set to Auto Fan Speed, the fan speed is adjusted between maximum and minimum setting as shown in the table.
- **Manual Fan Speed Control**
  Basic fan speed adjustment (3 settings, from Lo to Hi) can be carried out by using the Fan Speed selection button.

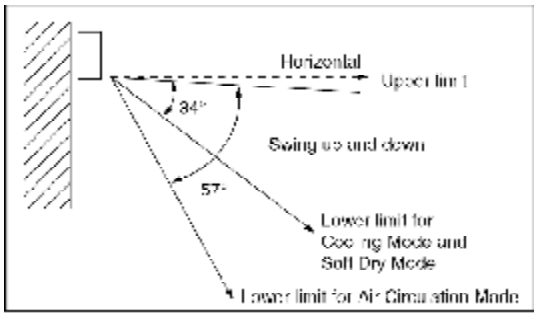
Fan Speed		Hi	Me	Lo	SLo	St
Cooling	Manual	O	O	O		
	Automatic	O	O			
Soft Dry				O	O	C
Air Circulation				O		C

※ SLo: Indoor Fan rotates at 4-second intervals at Low speed.

8.8. Airflow Direction Control

Airflow Direction Auto-Control

- When set a Airflow Direction Auto-Control with remote control, the louver swings up and down as shown in the diagram.
- The louver does not swing when the Indoor Fan stops during operation.
- When stopped with remote control, the discharge vent is closed with the louver.



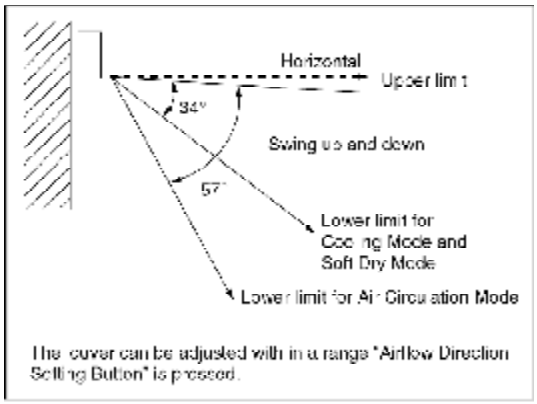
※ The left and right airflow direction louvers can be adjusted manually

1. There is no swinging while indoor fan is stopped during Cooling and Soft Dry operation.

2. In Air Circulation operation, when the intake air temperature reaches set temperature, the ai direction is changed from upper limit to lower limit. When the intake air temperature falls to lower than set temperature, the airflow direction is changed from lower limit to upper limit.

Airflow Direction Manual Control

- When the airflow direction set button is pressed, the automatic airflow is released and the airflow direction louver move up and down in the range shown in the diagram.
  The louver can be stopped by releasing the button at the desired louver position.
- When the remote control is used to stop the operation, the discharge vent is closed with airflow direction louver.



※ The left and right airflow direction louvers can be adjusted manually

8.9. Delay ON Timer Control

- When the Delayed ON Timer is set by using the remote control, the unit will start operate slightly before the set time, so that the room will reach nearly to the set temperature by the desired time.
- For Cooling and Soft Dry mode, the operation will start 15 minutes before the set time.
- For Automatic mode, the indoor fan will operate at SLo speed for 20 seconds 15 minutes before the set time to detect the intake air temperature to determine the operation mode. The operation

indication lamp will blink at this time.

9. Operating Instructions

10. Installation Instructions

Required tools for Installation Works			
1. Philips screw driver	5. Spanner	9. Gas leak detector	13. Multimeter
2. Level gauge	6. Pipe cutter	10. Measuring tape	14. Torque wrench 18 N.m (1.8 kgf.m) 55 N.m (5.5 kgf.m) 65 N.m (6.5 kgf.m)
3. Electric drill, hole core drill (ø70 mm)	7. Reamer	11. Thermometer	15. Vacuum pump
4. Hexagonal wrench (4 mm)	8. Knife	12. Megameter	16. Gauge manifold

10.1. Safety Precautions

- Read the following “SAFETY PRECAUTIONS” carefully before installation.
- Electrical work must be installed by a licensed electrician. Be sure to use the correct rating of the power plug and main circuit for the model to be installed.
- The caution items stated here must be followed because these important contents are related to safety. The meaning of each indication used is as below.
  Incorrect installation due to ignoring of the instruction will cause harm or damage, and the seriousness is classified by the following indications.

⚠ WARNING	This indication shows the possibility of causing death or serious injury.

⚠ CAUTION	This indication shows the possibility of causing injury or damage to prop only.

The items to be followed are classified by the following symbols:

	Symbol with background white denotes item that is PROHBITED from doi

- Carry out test running to confirm that no abnormality occurs after the installation. Then, explain to user the operation, care and maintenance as stated in instructions. Please remind the customer to keep the operating instructions for future reference.

WARNING
1. Engage dealer or specialist for installation. If installation done by the user is defective, it will c water leakage, electrical shock or fire.
2. Install according to this installation instruction strictly. If installation is defective, it will cause leakage, electrical shock or fire.
3. Use the attached accessories parts and specified parts for installation. Otherwise, it will cause to fall, water leakage, fire or electrical shock.
4. Install at a strong and firm location which is able to withstand the set's weight. If the strength enough or installation is not properly done, the set will drop and cause injury.
5. For electrical work, follow the local national wiring standard, regulation and this installation instruction. An independent circuit and single outlet must be used. If electrical circuit capacity enough or defect found in electrical work, it will cause electrical shock or fire.
6. Use the specified cable (2.5 mm2) and connect tightly for indoor/outdoor connection. Connect and clamp the cable so that external force will be acted on the terminal. If connection or fixing perfect, it will cause heat-up or fire at the connection.
7. Wire routing must be properly arranged so that control board cover is fixed properly. If contro cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electric
8. When carrying out piping connection, take care not to let air or other substances other than th specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnorr pressure in the refrigeration cycle, explosion and injury.
9. Do not damage or use unspecified power supply cord. Otherwise, it will cause fire or electrical shock.
10. Do not modify the length of the power supply cord or use of the extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.

⚠ CAUTION

1. **Grounding is necessary. It may cause electrical shock if grounding is not perfect.**
2. **Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.**
3. **Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, v may enter the room and damage the furniture.**

ATTENTION

1. **Selection of the installation location and installation.**
   Select a installation location which is rigid and strong enough to support or hold the unit, and location for easy maintenance.
2. **Power supply connection to the room air conditioner.**
   Connect the power supply cord of the room air conditioner to the mains using one of the follo method.
   Power supply point shall be the place where there is ease for access for the power disconnect case of emergency.
   In some countries, permanent connection of this room air conditioner to the power supply is prohibited.
   1. Power supply connection to the receptacle using a power plug.
   Use an approved 16A power plug with earth pin for 2.0 HP and 20A for 2.5 HP for the connection to the receptacle.
   2. Power supply connection to a circuit breaker for the permanent connection. Use an approved 16A circuit breaker for 2.0 HP and 20A for the permanent connection. It must be a double pole switch with a minimum 3 mm contact gap.
3. **Do not release refrigerant.**
   Do not release refrigerant during piping work for installation, reinstallation and during repairir refrigeration parts. Take care of the liquid refrigerant, it may cause frostbite.
4. **Installation work.**
   It may need two people to carry out the installation work.
5. **Do not install this appliance in a laundry room or other location where water may drip from the etc.**

Attached accessories

No.	Accessories part	Qty.	No.	Accessories part	Qty.
1	Installation plate	1	5	Band	2
2	Installation plate fixing screw	6	6	Remote control	1
3	Vinyl tape	3	7	Battery	2
4	Vinyl tape	1	8	Air purifying filter	2

Accesories: Flaring piping kit
CZ-4F5, 7, 10AN
CZ-52F5, 7, 10AN

SELECT THE BEST LOCATION

INDOOR UNIT

- **There should not be any heat source or steam near the unit.**
- **There should not be any obstacles blocking the air circulation.**
- **A place where air circulation in the room is good.**
- **A place where drainage can be easily done.**
- **A place where noise prevention is taken into consideration.**
- **Do not install the unit near the door way.**
- **Ensure the spaces indicated by arrows from the wall, ceiling fence, or other obstacles.**
- **Indoor unit of this room air conditioner shall be installed on the wall in a height of at least 2.3 m.**

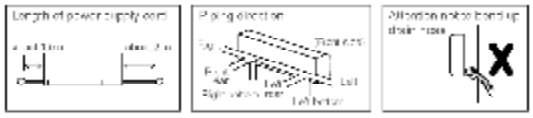
OUTDOOR UNIT

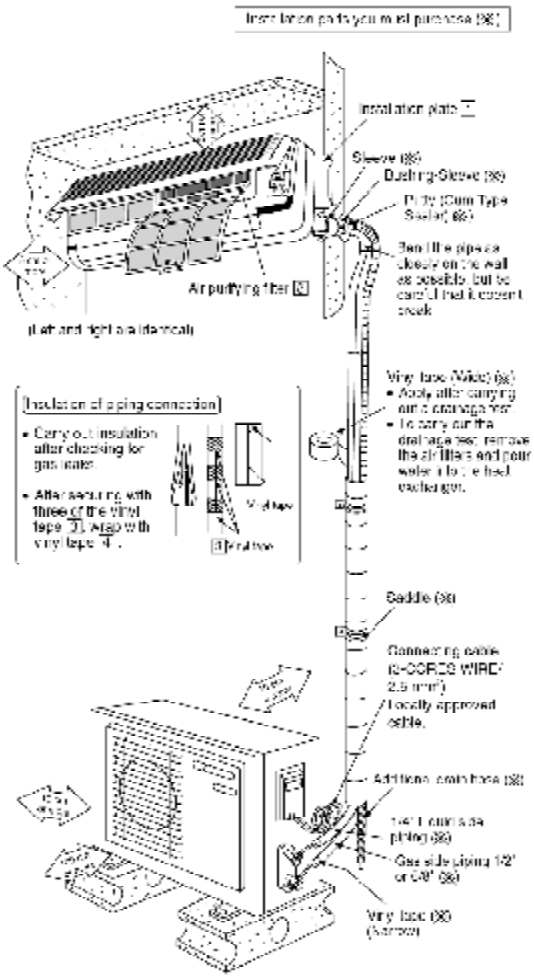
- **If an awning is built over the unit to prevent direct sunlight or rain, be careful that heat radiation from the condenser is not obstructed.**
- **There should not be any animal or plant which could be affected by hot discharged air.**
- **Keep the spaces indicated by arrows from wall, ceiling, fence or other obstacles.**
- **Do not place any obstacles which may cause a short circuit of the discharged air.**
- **If piping length is over 10m, additional refrigerant should be added as shown in the table.**

Model	Pipe size		Max. Piping Length A (m)	Max. Elevation B (m)	Rated		Additional Refrigerant (g/m)
	Gas	Liquid			Length (m)	Elevation (m)	
C182KR	1/2”	1/4”	25	20	7.5	5	20
C242KR	5/8”	1/4”	25	20	7.5	5	30

Example: For C242KR
If the unit will be installed at a 12m distance, the quantity of additional refrigerant should be 60g...(12-10)m × 30g/m = 60g

Indoor/Outdoor unit installation diagram





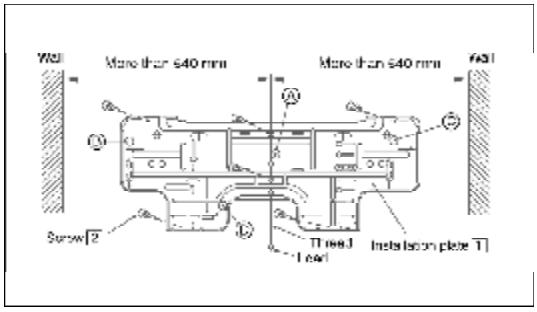
- This illustration is for explanation purposes only. / The indoor unit will actually face a different way.

10.2. INDOOR UNIT

10.2.1. SELECT THE BEST LOCATION / (Refer to “Select the best location” section)

10.2.2. HOW TO FIX INSTALLATION PLATE

The mounting wall is strong and solid enough to prevent it from the vibration.



Ⓐ : Unit centre should be at more than 540 mm at right and left.
The height should be more than 195 mm from the ceiling.

Ⓑ : From installation plate end to unit left side end is 40 mm.

Ⓒ : From installation plate end to unit right side end is 50 mm.

Ⓓ : Connecting cable should be about 750 mm from this line. (Only for left rear piping)

1. Mount the installation plate on the wall with 6 screws. / (If mounting the unit on the concrete wall, consider using anchor bolts.)

   - Always mount the installation plate horizontally by aligning the marking-off line with the thread and using a level gauge.

2. Drill the piping plate hole with ø70 mm hole-core drill.

   - Line according to the arrows marked on the lower left and right side of the installation plate. The meeting point of the extended line is the centre of the hole.

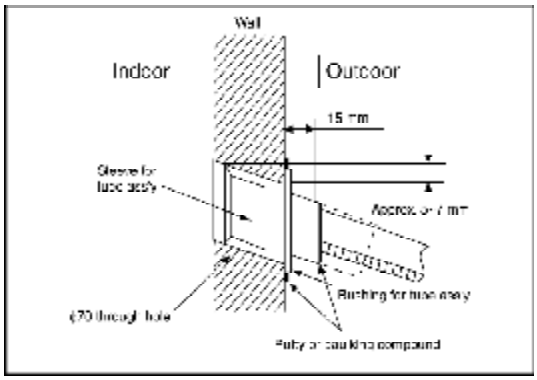
   - Drill the piping hole at either the right or the left and the hole should be slightly slant to the outdoor side.

10.2.3. TO DRILL A HOLE IN THE WALL AND INSTALL A SLEEVE OF PIPING

1. Insert the piping sleeve to the hole.
2. Fix the bushing to the sleeve.
3. Cut the sleeve until it extrudes about 15 mm from the wall.

Caution
When the wall is hollow, please be sure to use the sleeve for tube ass'y to prevent dangers caused by mice biting the connecting cable.

4. Finish by sealing the sleeve with putty or caulking compound at the final stage.



10.2.4. INDOOR UNIT INSTALLATION

1. For the right rear piping

Pull out the Indoor piping

↓

Install the Indoor Unit

↓

Secure the Indoor Unit

↓

Insert the connecting cable

2. For the right and right bottom piping

Pull out the Indoor piping

↓

Install the Indoor Unit

↓

Insert the connecting cable

↓

Secure the Indoor Unit

3. For the embedded piping

Exchange the drain hose and the cap

↓

Bend the embedded piping

↓

- Use a spring bender or equivalent to bend the piping so that the piping is not crushed.

Install the Indoor Unit

↓

Cut and flare the embedded piping

↓

- When determining the dimensions of the piping, slide the unit all the way to the left on the installation plate.
  Refer to the section "Cutting and flaring the piping".

Pull the connecting cable into Indoor Unit

↓

- The inside and outside connecting cable can be connected without removing the front grille.

Connect the piping

↓

- Please refer to "Connecting the piping" column in outdoor unit section. (Below steps are done after connecting the outdoor piping and gas-leakage confirmation.)

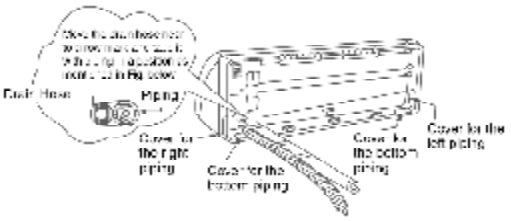
Insulate and finish the piping

↓

- Please refer to "Piping and finishing" column of outdoor section and "Insulation of piping connections" column as mentioned in Indoor/ Outdoor Unit Installation diagram.

Secure the Indoor Unit

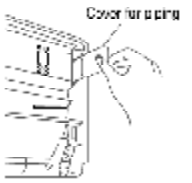
Pull out the piping and drain hose



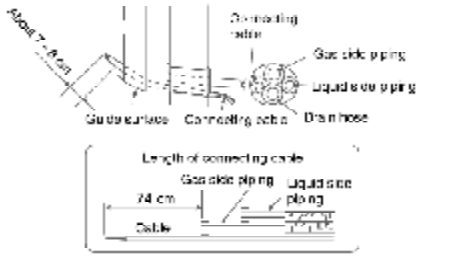
How to keep the cover

In case of the cover is cut, keep the cover at the rear of the unit as shown in the illustration for future reinstallation.

(Left, right and bottom covers for piping)

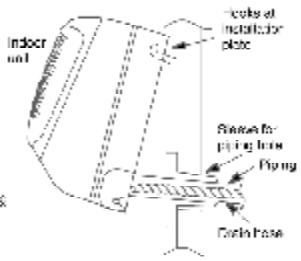


Insert the connecting cable



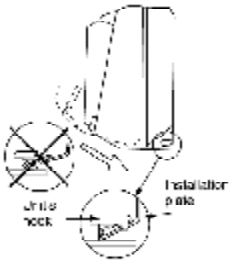
Install the indoor unit

Hook the indoor unit onto the upper portion of installation plate. (Engage the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving it in left and right.

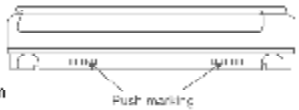


Secure the indoor unit

1. Tape the extra power supply cord in a bundle and keep it with the chassis.
2. Press the lower left and right side of the unit against the installation plate until hooks engages with their slots (sound click).



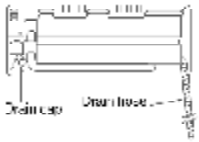
In case to take out the unit, push the PUSH marking on the unit bottom, and pull it slightly towards you to disengage the hooks from the unit.

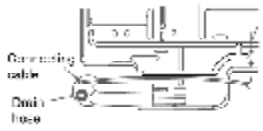


(This can be used for left rear piping and left bottom piping also)

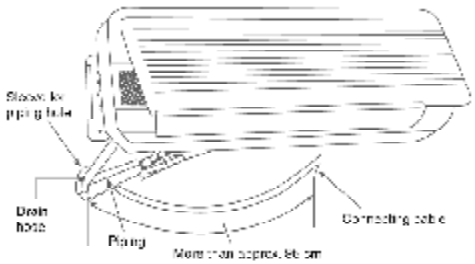
Exchange the drain hose and the cap

Refer view for left piping installation



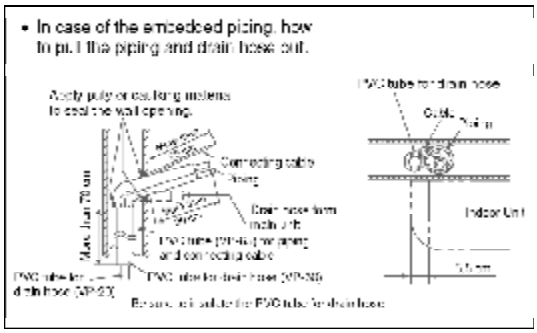


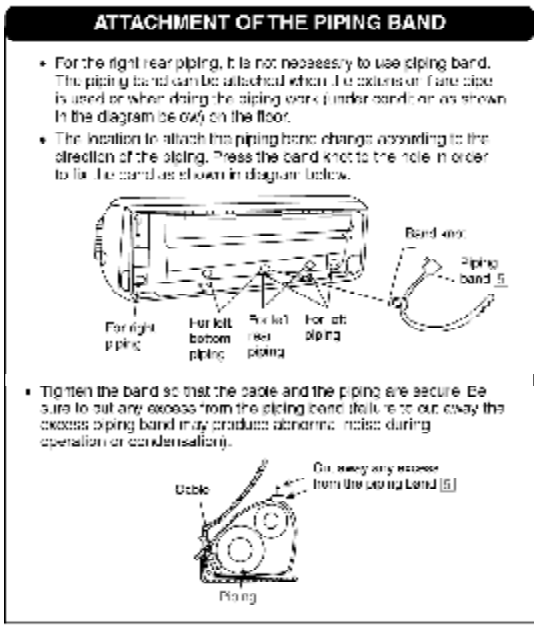
Adjust the piping slightly downwards.



- In case of left piping how to insert the connecting cable and drain hose.

(For the right piping, follow the same procedure)





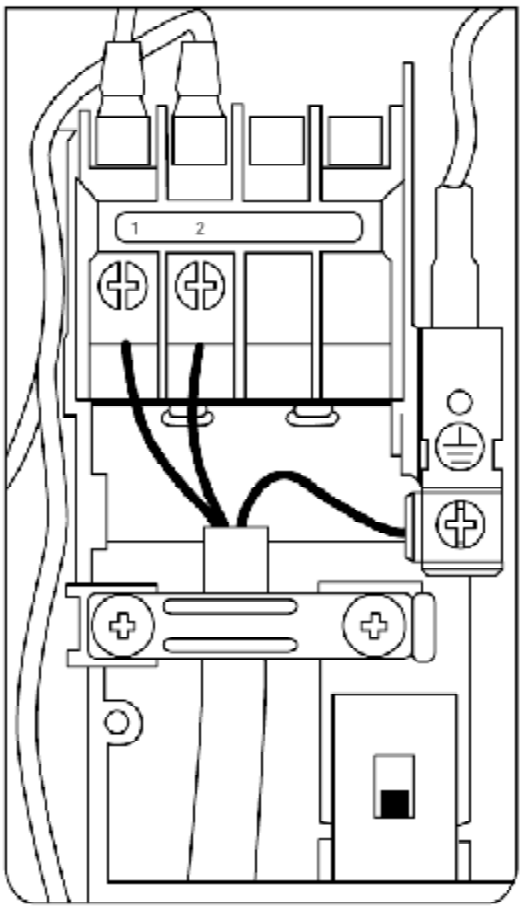
10.2.5. CONNECT THE CABLE TO THE INDOOR UNIT

1. **The inside and outside connecting cable can be connected without removing the front grille.**
2. **Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 × 2.5 mm² flexible cord, type designation H05 RN-F or heavier cord.**

   - Ensure the color of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.

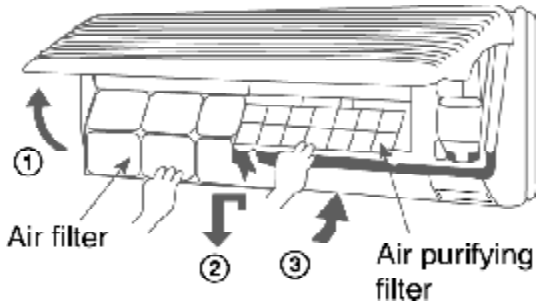
Terminals on the indoor unit	1	2	⏚
Color of wires			
Terminals on the outdoor unit	1	2	⏚

   - Secure the cable onto the control board with the holder (clamper).



INSTALLATION OF AIR PURIFYING FILTERS

1. **Open the front panel.**
2. **Remove the air filters.**
3. **Hold the purifying filters by their tabs and install as shown in the illustration at below.**

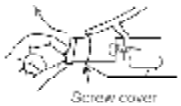


HOW TO TAKE OUT FRONT GRILLE

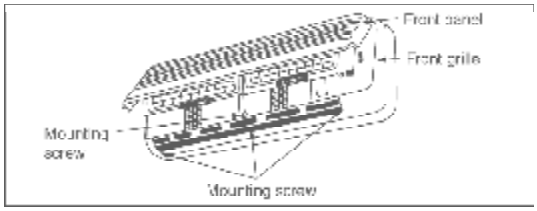
Please follow below steps to take out front grille if necessary such as when servicing. Remove the Grille from the chassis.

1. **Set the up-and-down air direction louver to open position (horizontally) by finger pressure.**

2. **Open the 3 screw covers as shown in the illustration below.**



3. **Remove the three mounting screws. (Refer Diagram below)**
4. **Open the front panel and remove a mounting screw at the centre. (Refer Diagram below)**
5. **To remove the Grille, pull the lower left and right side of the grille towards you (slightly tilted) and lift it straight upwards (Two tabs on the top inside edge of the grille are clear of their slots).**

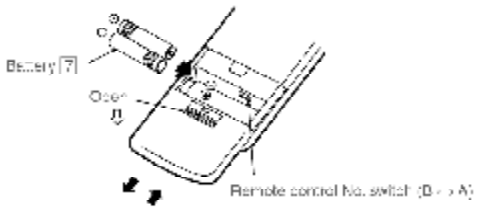


When reinstalling the front grille, first set the vertical airflow direction louver to the horizontal position and then carry out above steps 2 ~ 5 in the reverse order.

REMOTE CONTROL NO. SWITCH

1. **When installing two air conditioners in one room, each air conditioner can be synchronized to the remote controller.**

2. In order to operate separately, open the rear cover of one of the remote controller and set the switch to “B”.
3. Also, set the remote control No. switch to “B” in the corresponding indoor unit.
   (The switch is located in the control box-sub. of the indoor unit.)



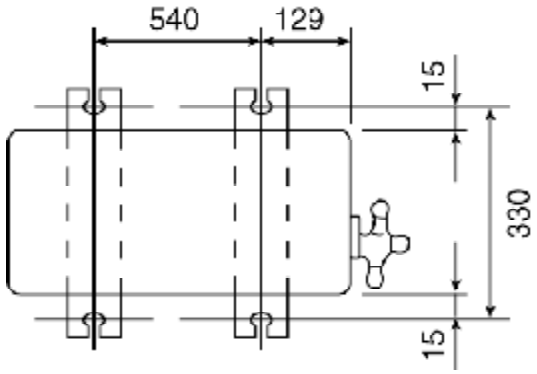
10.3. OUTDOOR UNIT

10.3.1. SELECT THE BEST LOCATION / (Refer to “Select the best location” section)

10.3.2. INSTALL THE OUTDOOR UNIT

- After selecting the best location, start installation according to Indoor/outdoor Unit Installation Diagram.

1. Fix the unit on concrete or rigid frame firmly and horizontally by bolt nut. (ø10 mm).
2. When installing at roof, please consider strong wind and earthquake. Please fasten the installation stand firmly with bolt or nails.

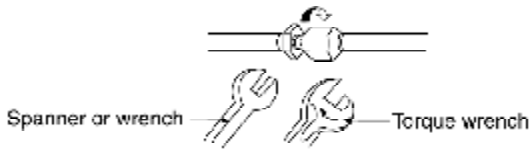


10.3.3. CONNECTING THE PIPING

Connect Piping to Indoor

Please make flare after inserting flare nut (locate at joint portion of tube assembly) onto the copper pipe. (In case of using long piping)
Connect the piping

- Align the center of piping and sufficiently tighten the flare nut with fingers.
- Further tighten the flare nut with torque wrench in specified torque as stated in the table.

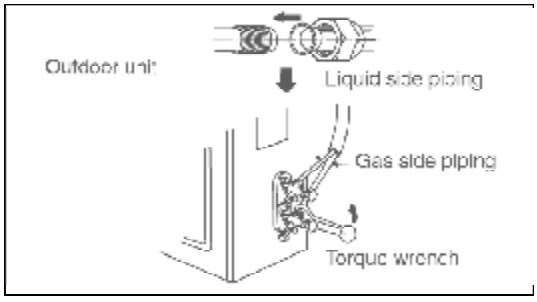


MODEL	Pipe size	Torque
C182KR, C242KR	Liquid Side 1/ 4”	18 N.m
C182KR	Gas Side 1/2”	55 N.m
C242KR	Gas Side 5/ 8”	65 N.m

Connecting the Piping to Outdoor Unit

1. Align the center of the piping and sufficiently tighten the flare nut with fingers.
2. Finally, tighten the flare nut with torque wrench until the wrench clicks.

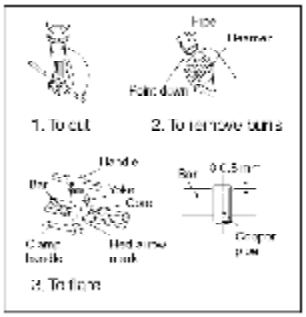
   - When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.



CUTTING AND FLARING THE PIPING

1. Please cut using pipe cutter and then remove the burrs.
2. Remove the burrs by using reamer. If burrs is not removed, gas leakage may be caused.
   Turn the piping end down to avoid the metal powder entering the pipe.

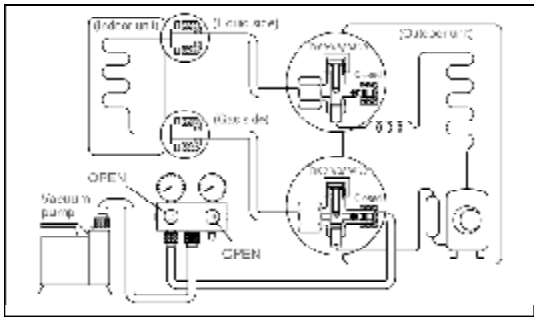
3. Please make flare after inserting the flare nut onto the copper pipes.



10.3.4. EVACUATION OF THE EQUIPMENT

WHEN INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.

If air remains in the indoor unit and refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



SERVICE PORT CAP

Be sure, using a torque wrench to tighten the service port cap (after using the service port), so that it prevents the gas leakage from the refrigeration cycle.

Procedure:

1. Connect a charging hose with a push pin to the Low and High sides of a charging set and the service port of a 3-way valves.

- Be sure to connect the end of the charging hose with the push pin to the service port.

2. Connect the center hose of the charging set to a vacuum pump.

3. Turn on the power switch of the vacuum pump and make sure

that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air approximately ten minutes.

4. Close the valve of both the Low and High sides of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately five minutes.
   Note: BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. Disconnect the charging hose from the vacuum pump and from the service port of both of the 3-way valve.
6. Tighten the service port caps of the 3-way valve at torque of 18 N.m with a torque wrench.
7. Remove the valve caps of both of the 3-way valve. Position both of the valves to “OPEN” using a hexagonal wrench (4 mm).
8. Mount valve caps onto both of the 3-way valves.

   - Be sure to check for gas leakage.

CAUTION

- If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa), in step 3 above, take the following measure:
- If the leaks stop when the piping connections are tightened further, continue working from step 3.
- If the leaks do not stop when the connections are retightened, repair the location of leak.

10.3.5. CONNECT THE CABLE TO THE OUTDOOR UNIT

(FOR DETAIL REFER TO WIRING DIAGRAM AT UNIT)

1. Remove the control board cover from the unit by loosening the screw.
2. Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed 3 × 2.5 mm^2 flexible cord, type designation H05 RN-F or heavier cord.

Terminals on the indoor unit	1	2	⏚
Color of wires			
Terminals on the outdoor unit	1	2	⏚

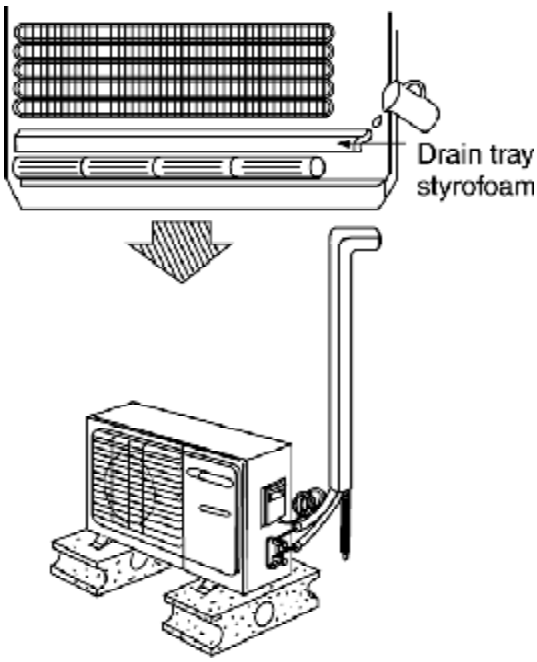
3. **Secure the cable onto the control board with the holder (clamper).**
4. **Attach the control board cover to the original position with the screw.**

10.3.6. PIPE INSULATION

1. **Please carry out insulation at pipe connection portion as mentioned in Indoor/Outdoor Unit Installation Diagram. Please wrap the insulated piping end to prevent water from going inside the piping.**
2. **If drain hose or connecting piping is in the room (where dew may form), please increase the insulation by using POLY-E FOAM with thickness 6 mm or above.**

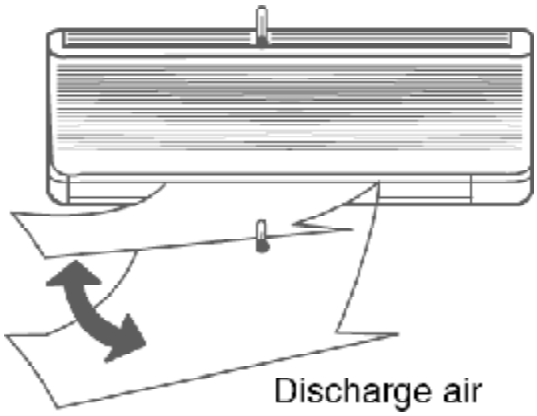
CHECK THE DRAINAGE

- Pour a glass of water into drain tray.
- Ensure if water flows out from drain hose of indoor unit.



EVALUATION OF THE PERFORMANCE

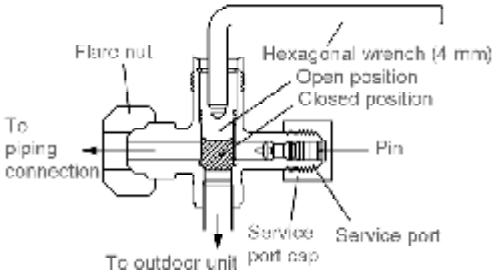
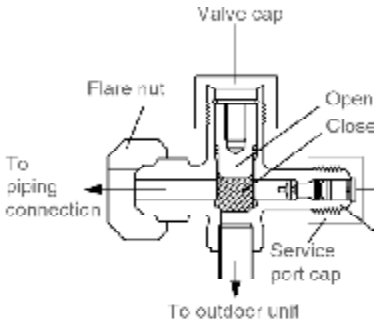
- **Operate the unit at cooling operation mode for fifteen minutes or more.**
- **Measure the temperature of the intake and discharge air.**
- **Ensure the difference between the intake temperature and the discharge is more than 8°C.**



CHECK ITEMS

- [ ] **Is there any gas leakage at flare nut connection?**
- [ ] **Has the heat insulation been carried out at flare nut connection?**
- [ ] **Is the connecting cable being fixed to terminal board firmly?**
- [ ] **Is the connecting cable being clamped firmly?**
- [ ] **Is the drainage OK?**
  (Refer to “Check the drainage” section)
- [ ] **Is the earth wire connection properly done?**
- [ ] **Is the indoor unit properly hooked to the installation plate?**
- [ ] **Is the power supply voltage complied with rated value?**
- [ ] **Is there any abnormal sound?**
- [ ] **Is the cooling operation normal?**
- [ ] **Is the thermostat operation normal?**
- [ ] **Is the remote control’s LCD operation normal?**
- [ ] **Is the air purifying filter installed?**

11. 3-way Valve

	3-way Valve (Liquid Side)		3-way Valve (Gas Side
			
Works	**Shaft Position**	**Service Port**	**Shaft Position**	**Servic**
Shipping	**Closed (With valve cap)**	**Closed (With cap)**	**Closed (With valve cap)**	**Clo (With**
Evacuation (Installation and Re-installation)	**Closed (Clockwise)**	**Closed (Connected manifold gauge w/charging cylinder)**	**Closed (Clockwise)**	**Op (Push**
Operation	**Open (With valve cap)**	**Open (With cap)**	**Open (With valve cap)**	**Clo (With**
Pumping down (Transferring)	**Closed (Clockwise)**	**Closed (With cap)**	**Open (Counter-Clockwise)**	**Op (Conn manifol**
Evacuation (Servicing)	**Open (Counter-clockwise)**	**Open (Connected manifold gauge)**	**Open (Counter-clockwise)**	**Op (Conn manifol**
Gas charging (Servicing)	**Open (Counter-clockwise)**	**Open (Connected manifold gauge)**	**Open (Counter-clockwise)**	**Op (Conn manifol**
Pressure check	**Open**	**Open**	**Open**	**Op**

	3-way Valve (Liquid Side)		3-way Valve (Gas Side	
(Servicing)	(Counter-clockwise)	(Connected manifold gauge)	(Counter-clockwise)	(Conn manifol
Gas releasing (Servicing)	Open (Counter-clockwise)	Open (Connected manifold gauge)	Open (Counter-clockwise)	Op (Conn manifol

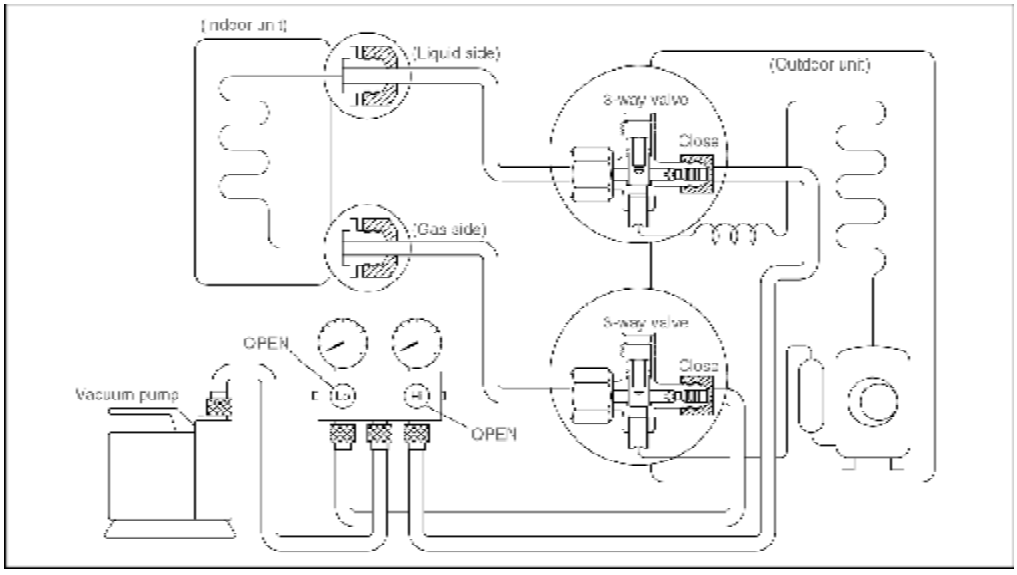
11.1. Evacuation of Installation

When installing an air conditioner, be sure to evacuate the air inside the indoor unit and pipes in the following procedure.

Required tools:

hexagonal wrench, adjustable wrench, torque wrenches, wrench to hold the joints, gas leak detector, and charging set.

The air in the indoor unit and in the piping must be purged. If air remains in the refrigeration pipings, it will affect the compressor, reduce the cooling capacity, and could lead to a malfunction.



Service port cap **Be sure, using a torque wrench to tighten the service port cap (after using the service port), so tl prevents the gas leakage from the refrigeration cycle**

Procedure:

1. Connect a charging hose with a push pin to the Low and High

sides of a charging set and the service ports of a 3-way valves.

- Be sure to connect the end of the charging hose with the push pin to the service port.

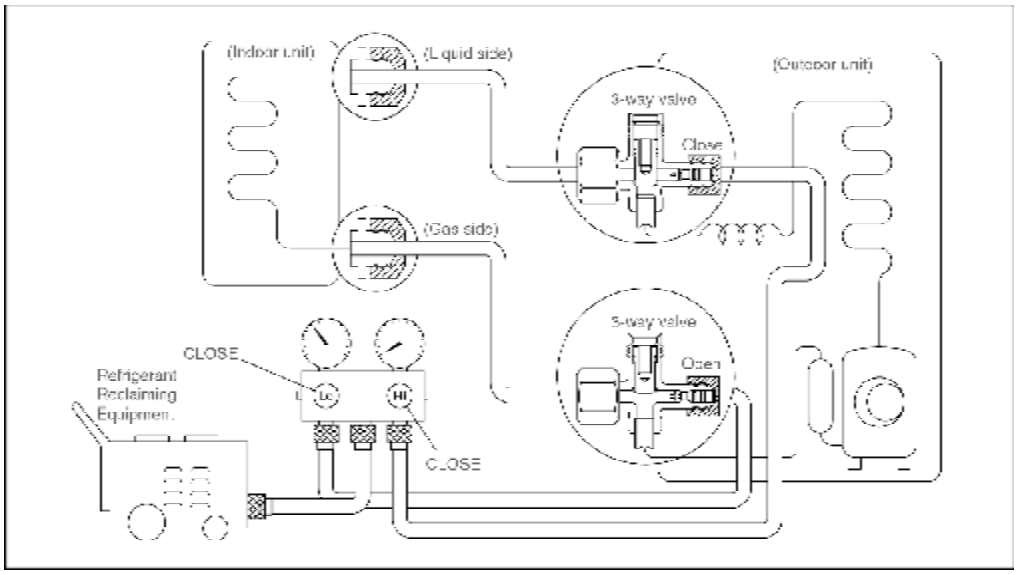
2. Connect the centre hose of the charging set to a vacuum pump.
3. Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air for approximately 10 minutes.
4. Close the valve of both the Low and High sides of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately 5 minutes.
   BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. Disconnect the charging hose from the vacuum pump and from the service ports of the 3-way valves.
6. Tighten the service port caps of both the 3-way valves at a torque of 18 N.m with a torque wrench.
7. Remove the valve caps of both the 3-way valves. Position both of the valves to “open” using a hexagonal wrench (4 mm).
8. Mount the valve caps onto both of the 3-way valves.

- Be sure to check for gas leakage.

Caution

If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa) in step (3) above, take the following measures:
If the leaks stop when the piping connections are tightened further, continue working from step (3).
If the leaks do not stop when the connections are retightened, repair the location of the leak.

11.2. Pumping down



Procedure:

1. **Confirm that both the 3-way valves are set to the open position.**

   - **Remove the valve stem caps and confirm that the valve stems are in the open position.**
   - **Be sure to use a hexagonal wrench to operate the valve stems.**

2. **Operate the unit for 10 to 15 minutes.**
3. **Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.**

   - **Connect the charge hose with the push pin to the Gas side service port.**

4. **Air purging of the charge hose.**

   - **Open the low-pressure valve on the charge set slightly to purge air from the charge hose.**

5. **Set the Liquid side 3-way valve to the close position.**
6. **Operate the air conditioner at the cooling cycle and stop it when the gauge indicates 0 kg/cm$_2$G (0 MPa).**

   - **If the unit cannot be operated at the cool condition (weather is rather cool), press the Pump Down Switch on the Indoor**

unit.

- So that the unit can be operated.

7. Immediately set gas side 3-way valve to the close position.

- Do this quickly so that the gauge ends up indicating 1 to 3 kg/ cm^2G (0.1 MPa to 0.3 MPa).

8. Use refrigerant reclaiming equipment to collect refrigerant from indoor unit and pipes.

9. Disconnect the charge set, and mount both the 3-way valve's stem nuts and the service port caps.

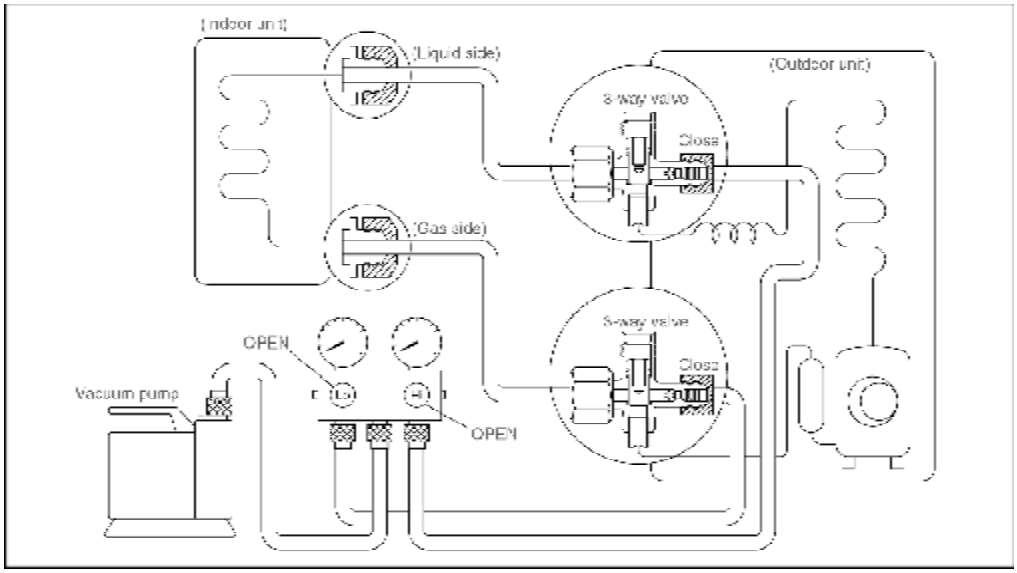
- Use a torque wrench to tighten the service port cap to a torque of 18 N.m.

- Be sure to check for gas leakage.

10. Disconnect pipes from indoor unit and outdoor unit.

11.3. Evacuation of Re-installation

WHEN RE-INSTALLING AN AIR CONDITIONER, BE SURE TO EVACUATE THE AIR INSIDE THE INDOOR UNIT AND PIPES in the following procedure.
If air remain in the indoor unit and refrigeration pipes, it will affect the compressor, reduce to cooling capacity, and could lead to a malfunction.



Procedure:

1. **Connect a charging hose with a push pin to the Low and High sides of a charging set and the service port of the 3-way valve.**

   - Be sure to connect the end of the charging hose with the push pin to the service port.

2. **Connect the centre hose of the charging set to a vacuum pump.**
3. **Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa). Then evacuate the air for approximately 10 minutes.**
4. **Close the valve of both Low side and High side of the charging set and turn off the vacuum pump. Make sure that the needle in the gauge does not move after approximately 5 minutes.**
   BE SURE TO TAKE THIS PROCEDURE IN ORDER TO AVOID REFRIGERANT GAS LEAKAGE.
5. **Disconnect the charging hose from the vacuum pump.**
6. **Charge the pipes and indoor unit with gas refrigerant from liquid (High) side 3-way valve service port and then discharge the refrigerant until gas (Low) side gauge needle indicates 3 kg/cm^2 (0.3 MPa).**

   - BE SURE TO USE REFRIGERANT RECLAIMING EQUIPMENT WHILE DISCHARGING THE REFRIGERANT.
   - Purge the air from charge set's centre hose.
   - Be sure to check for gas leakage.

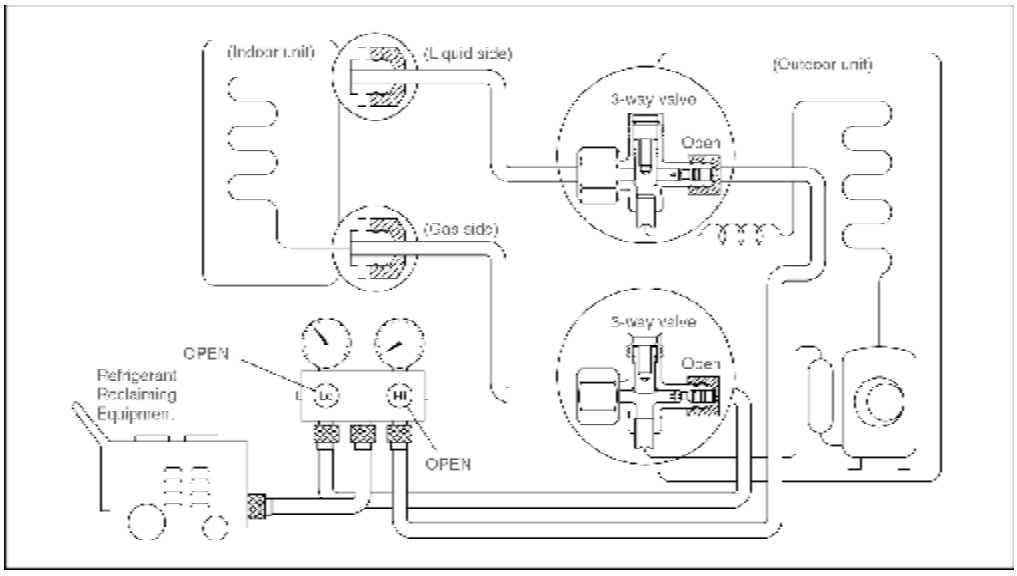
Caution

If gauge needle does not move from 0 cmHg (0 MPa) to -76 cmHg (-0.1 MPa) in step (3) above, take the following measures:
If the leaks stop when the piping connections are tightened further, continue working from step 3.
If the leaks do not stop when the connections are retightened, repair the location of the leak.

7. **Tighten the service port caps of both the 3-way valves at a torque of 18 N.m with a torque wrench.**
8. **Remove the valve caps of both the 3-way valves. Position both of the valves to “open” using a hexagonal wrench (4 mm).**
9. **Mount valve caps onto the 3-way valves.**

11.4. Balance refrigerant of the 3-way valves

(Lack of refrigerant in the refrigeration cycle)



Procedure:

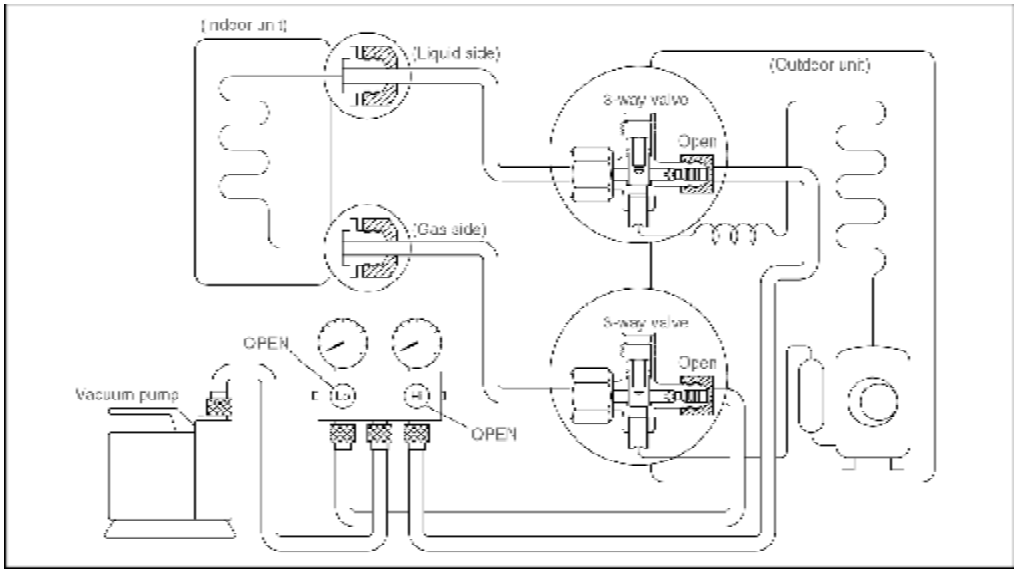
1. **Confirm that both the 3-way valves are set to the opened position.**
2. **Connect the charge set to the 3-way valve’s service port.**

- Leave the valve on the charge set closed.
- Connect the charge hose with the push-pin to the service port.
- Confirm whether the pressure indicates more than 0.1 MPa (1 kg/cm$_2$G).

3. Connect the charge set's centre hose to refrigerant reclaiming equipment.
4. Open the valve (Low side) on the charge set and loosen the hose connected with the Refrigerant Reclaiming Equipment to purge the air from the hose.
5. Turn on refrigerant reclaiming equipment to collect the refrigerant until the needle indicates 0 (no refrigerant is remaining).

11.5. Evacuation

(No refrigerant in the refrigeration cycle)



Procedure:

1. Connect the vacuum pump to the charge set's centre hose.
2. Turn on the vacuum pump to evacuate the unit.

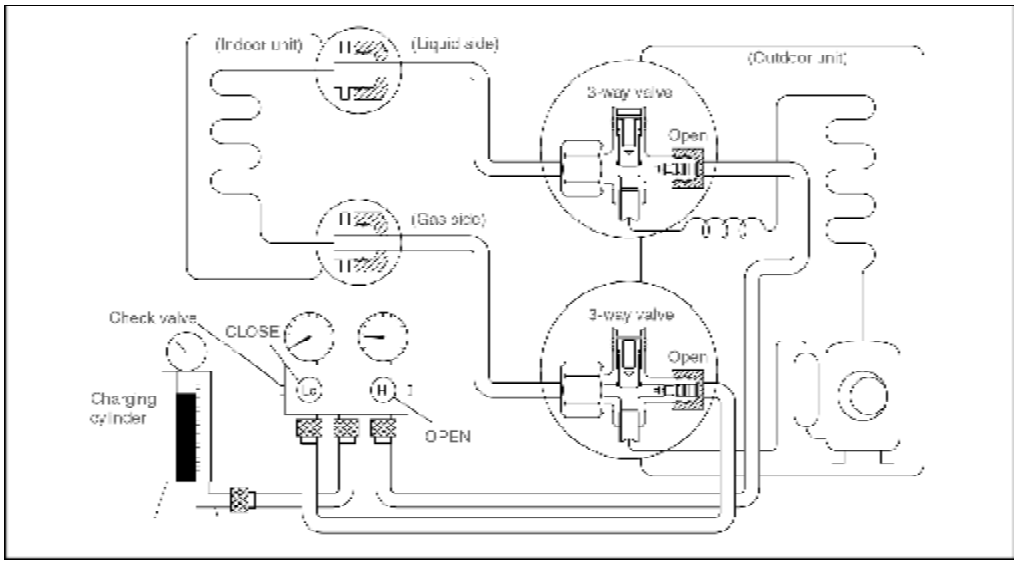
- Confirm that the gauge needle has moved toward -76 cmHg (-0.1 MPa).
- Apply the vacuum for approximately 1 hour (vacuum of 4

mmHg or less).

3. **Close the valves (Low side and High side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after the vacuum pump is turned off).**
4. **Disconnect the charge hose from the vacuum pump.**

11.6. Gas charging

(After Evacuation)



Procedure:

1. **Connect the charge hose to the charging cylinder.**

   - Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.
2. **Purge the air from the charge hose.**

   - Open the valve at the bottom of the cylinder and use a screwdriver to press the check valve on the charge set to purge the air (be careful of the liquid refrigerant).
3. **Open the High side on the charge set and charge the refrigerant to the unit.**

   - Be sure to open only the High side valve on the charge set to charge the system from the liquid-side (high-presure) pipe. (If

the system cannot be charged with the specified amount of refrigerant, operate the compressor until the specified amount can be charged, and then close the valve at the bottom of the charge cylinder.)

4. Immediately disconnect the charge hoses from both 3-way valve service ports.
5. Mount the valve stem nuts and the service port caps onto the 3-way valves.

   - Use torque wrench to tighten the service port caps to a torque of 18 N.m.
   - Be sure to check for gas leakage.

12. Servicing Information

(A) Disassembly of the parts

- Inspection points for the Indoor Electronic Controller

1. The Electronic Controller, a signal Receiver and an Indicator can be seen by removing the Front Grille and Control Board Cover, as shown in the Fig. 1.

- Indoor Fan Motor removal procedure:-

1. Remove the connector CN-FM (GREEN) of Fan Motor and connector CN-STM (GREEN) of stepping motor from the electronic controller. Release the earth wire (YELLOW-GREEN) from the control board terminal and sensors from its holders. (Refer Fig. 2.)
2. Remove the Control Board.
   As shown in Fig. 3, remove the 3 screws and release the tab at the top of Control Board (Fig. 4). Pull the Control Board forward slightly.
   Caution: Removal of Discharge Grille before removing the control board is necessary to avoid damaging other parts.

Fig. 1

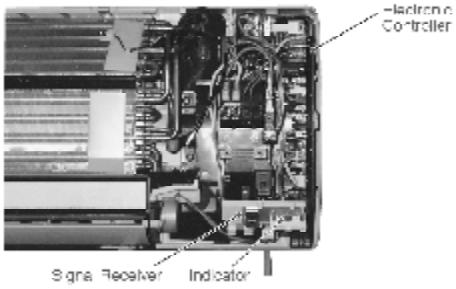


Fig. 2

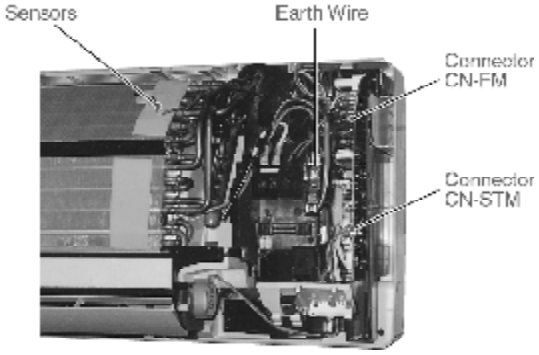


Fig. 3

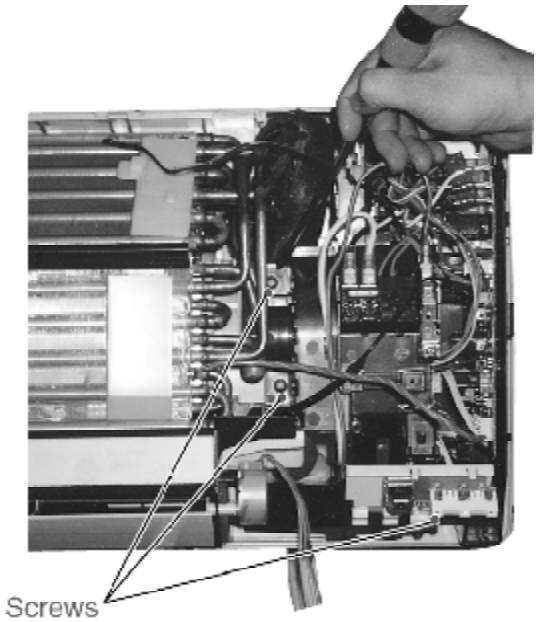
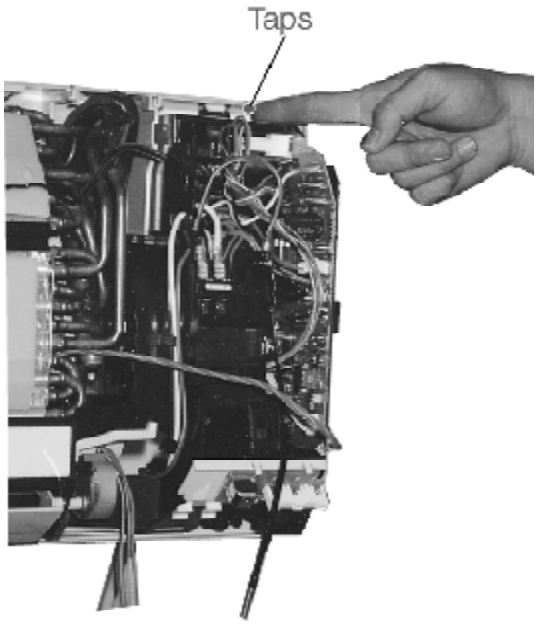


Fig. 4



3. Remove the Discharge Grille.

Remove the Discharge Grille by taking off the 3 screws that hold the Discharge Grille and then pull the Discharge Grille in a down and forward direction.

4. Remove the Indoor Fan Motor.

Loosen the Fan Mounting Screw at the junction with Cross Flow Fan.

Remove the screw that hold the metal plate and remove the metal plate.

Pull off the Bearing at the left of the Cross Flow Fan and remove the Indoor Fan motor.

Fig. 5

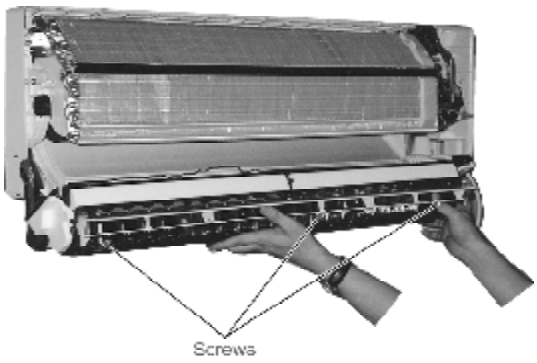


Fig. 6

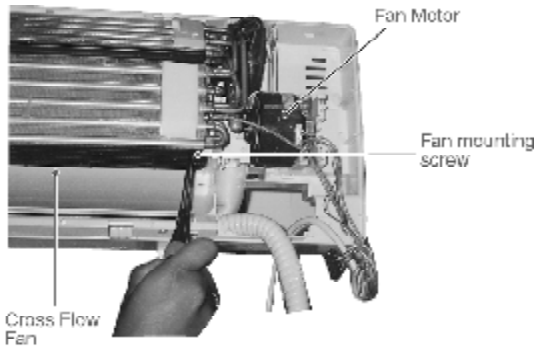


Fig. 7

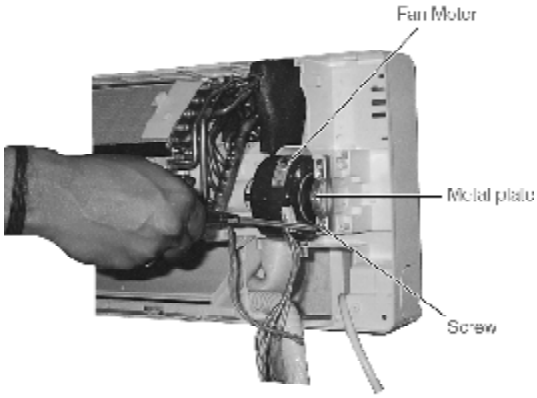
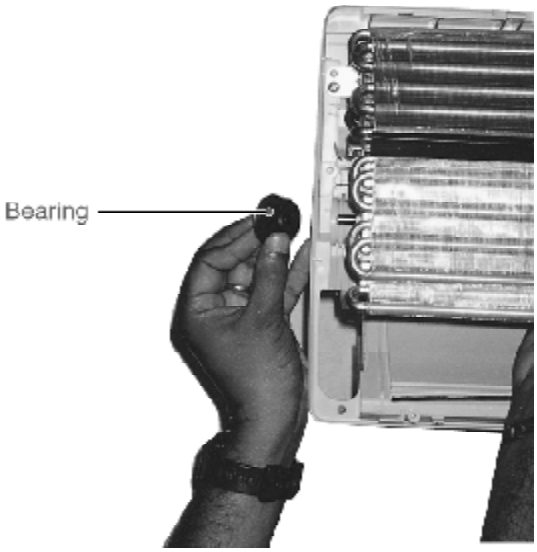


Fig. 8



- Cross Flow Fan Removal Procedure

1. **Remove the Fan Mounting Screws and Bearing.**
   (Refer to No. 4 of Indoor Fan Motor the removal procedure)
2. **Loosen the 2 screws mounted at the left side of the evaporator.**
3. **Pull the left side of the evaporator forward slightly and remove the cross Flow Fan.**

Fig. 9

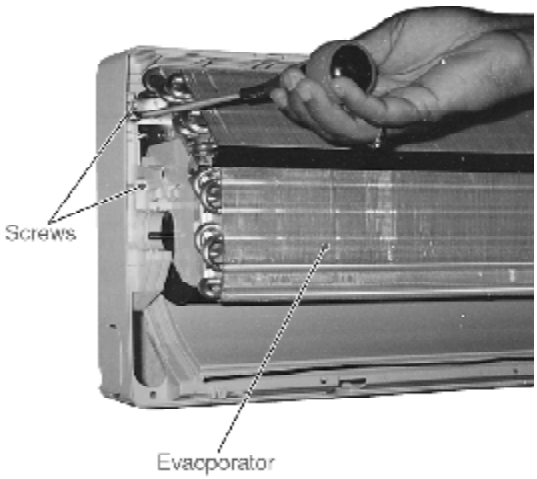
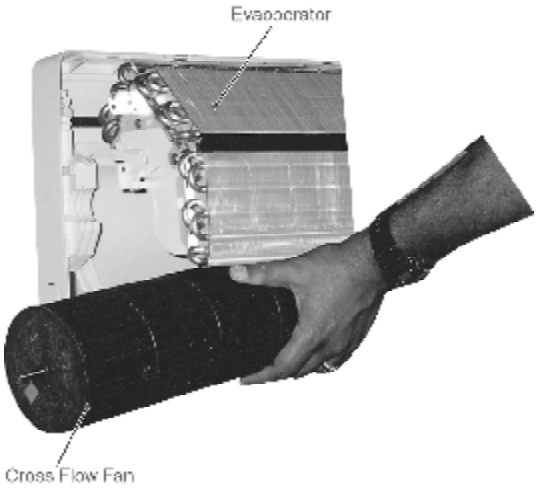


Fig. 10



(B) Remote Control Transmission Setting

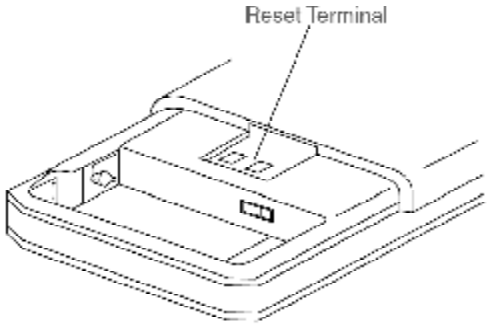
- Remote Control Reset

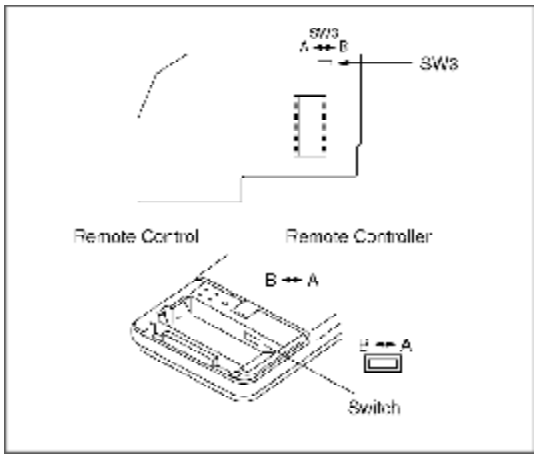
When the batteries are inserted for the first time, or the batteries are replaced, all the indications will blink and the remote control might not work.
If this happens, remove the back cover of the remote control and you will find a resetting terminal, and by shorting it with a minus screwdriver, it will return to normal.

- Changing the wireless remote control transmission code

When two indoor units are installed in the same room, in order to

prevent operating errors caused by using two remote controls, set up the remote control [B ← → A] switch (SW3).
The unit is set to A when it is shipped.





- By adding a jumper wire to the remote control side and a carbon resistor (1/4 W, 10 k) to the indoor printed circuit board, it is possible to select from 4 types of transmission codes including the condition at time of delivery condition (1).

	Remote control		Indoor printed circuit board		Note
	Switch SW B ↔ A	J – B	Switch SW 3	RX	
1	A	——	A	——	At product delivery
2	B	——	B	——	
3	A	Jumper wire	A	10 k	
4	B	Jumper wire	B	10 k	

13. Troubleshooting Guide

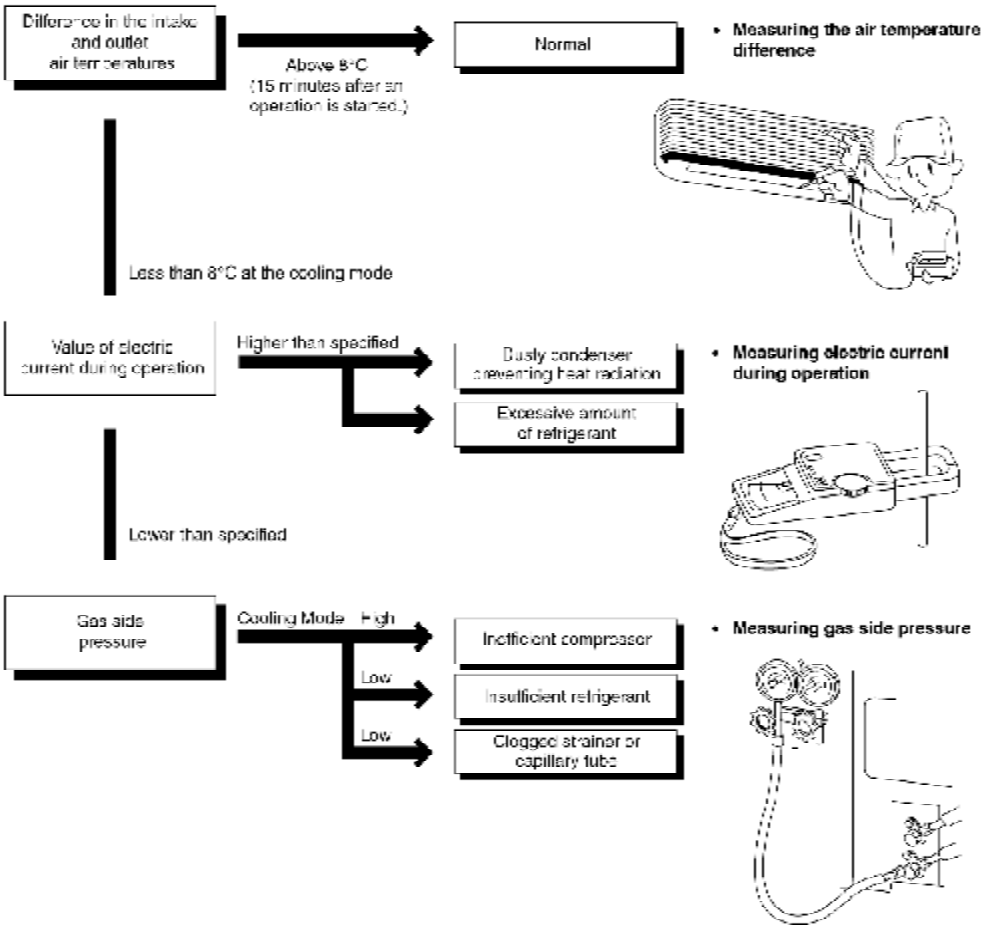
13.1. Refrigeration cycle system

In order to diagnose malfunctions, make sure that there are no electrical problems before inspecting the refrigeration cycle. Such problems include insufficient insulation, problem with the power source, malfunction of a compressor or a fan.
The normal outlet air temperature and pressure of the refrigeration cycle depends on various conditions, the standard values for them are shown in the table on the right.

Normal Pressure and Outlet Air Temperature (Standard)

	Gas pressure MPa (kg/cm²G)	Outlet air temperature (°C)
Cooling mode	0.4 ~ 0.6 (4 ~ 6)	12 ~ 18

★ Condition: Indoor fan speed: High
Outdoor temperature: 35°C


Difference in the intake and outlet air temperatures
Above 8°C (15 minutes after an operation is started.)
Normal
• Measuring the air temperature difference
Less than 8°C at the cooling mode
Value of electric current during operation
Higher than specified
Dusty condenser preventing heat radiation
Excessive amount of refrigerant
• Measuring electric current during operation
Lower than specified
Gas side pressure
Cooling Mode High
Low
Low
Inefficient compressor
Insufficient refrigerant
Clogged strainer or capillary tube
• Measuring gas side pressure

13.1.1. Relationship between the condition of the air conditioner and pressure and electric current

Condition of the air conditoner	Cooling Mode		
	Low Pressure	High Pressure	Electric current operation
Insufficient refrigerant (gas leakage)			
Clogged capillary tube or Strainer			
Short circuit in the indoor unit			
Heat radiation deficiency of the outdoor unit			
Inefficient compression			

- Carry out the measurements of pressure, electric current, and temperature fifteen minutes after an operation is started.

13.1.2. Diagnosis methods of a malfunction of a compressor

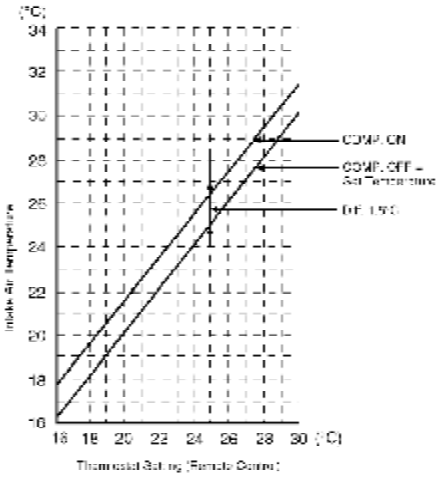
Nature of fault	Symptom
Insufficient compressing of a compressor	-Electric current during operation becomes approximately 20% lower than the normal value -The discharge tube of the compressor becomes abnormally hot (normally 70 to 90°C). -The difference between high pressure and low pressure becomes almost zero.
Locked compressor	-Electric current reaches a high level abnormally, and the value exceeds the limit of an amr some cases, a breaker turns off. -The compressor is a humming sound.

14. Technical Data

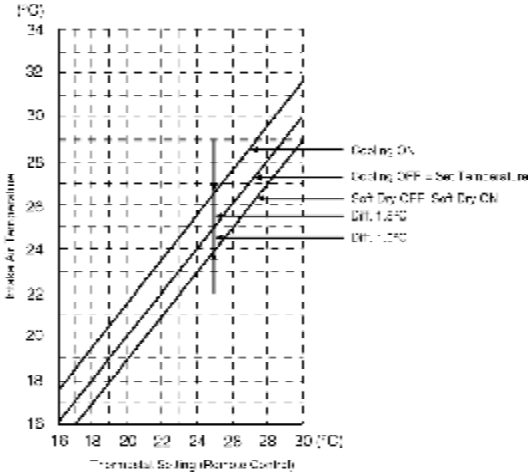
■ Thermostat characteristics

CS-C182KR / CS-C242KR

• **Cooling**



• **Soft Dry**



■ Sensible Capacity Chart

• **CS-C182KR**

Cooling	Outdoor Temp. (°C)											
Indoor wet Bulb temp.	30			35			40			46		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0°C	5.29	4.81	2.01	4.97	4.64	2.20	4.64	4.32	2.35	4.21	3.73	2.53
19.0°C				5.40		2.22						
19.5°C	5.89	4.21	2.06	5.51	3.94	2.22	5.13	3.89	2.38	4.70	3.73	2.55
22.0°C	6.53	3.94	2.09	6.10	3.46	2.24	5.67	3.08	2.42	5.18	2.70	2.60

• **CS-C242KR**

Cooling	Outdoor Temp. (°C)											
Indoor wet bulb temp.	30			35			40			46		
	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP	TC	SHC	IP
17.0°C	6.52	5.92	2.81	6.12	5.72	3.02	5.72	5.32	3.23	5.19	4.59	3.48
19.0°C				6.65		3.05						
19.5°C	7.25	5.19	2.84	6.78	4.85	3.05	6.32	4.79	3.26	5.79	4.59	3.51
22.0°C	8.05	4.85	2.87	7.51	4.26	3.08	6.98	3.79	3.32	6.38	3.33	3.57

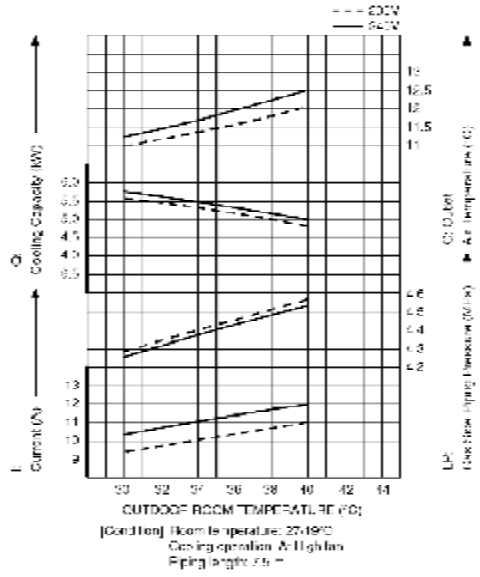
TC - Total Cooling (kW)
SHC - Sensible Heat Capacity (kW)
IP - Input Power (kW)

Indoor 27°C/19°C
Outdoor 35°C/24°C

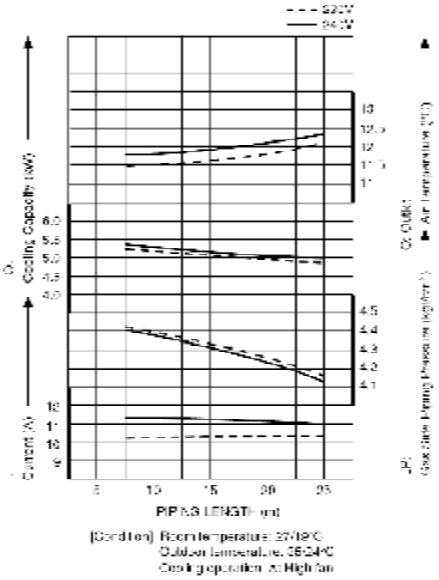
■ Operation characteristics

CS-C182KR / CU-C182KR

- **Cooling Characteristic**

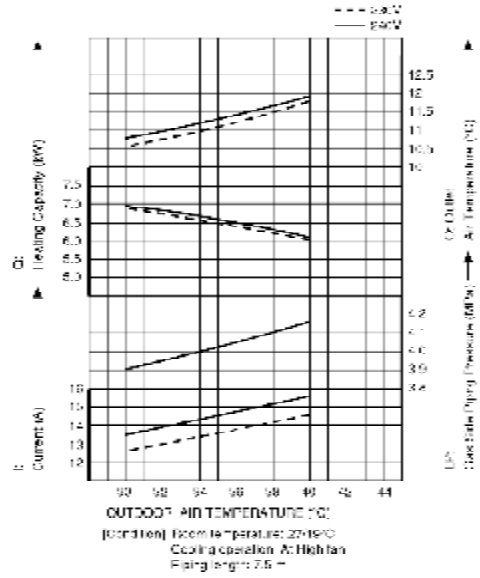


- **Piping Length Characteristic**

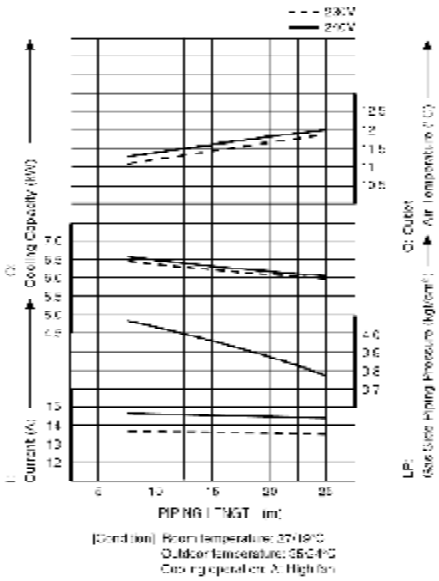


CS-C242KR / CU-C242KR

- **Cooling Characteristic**

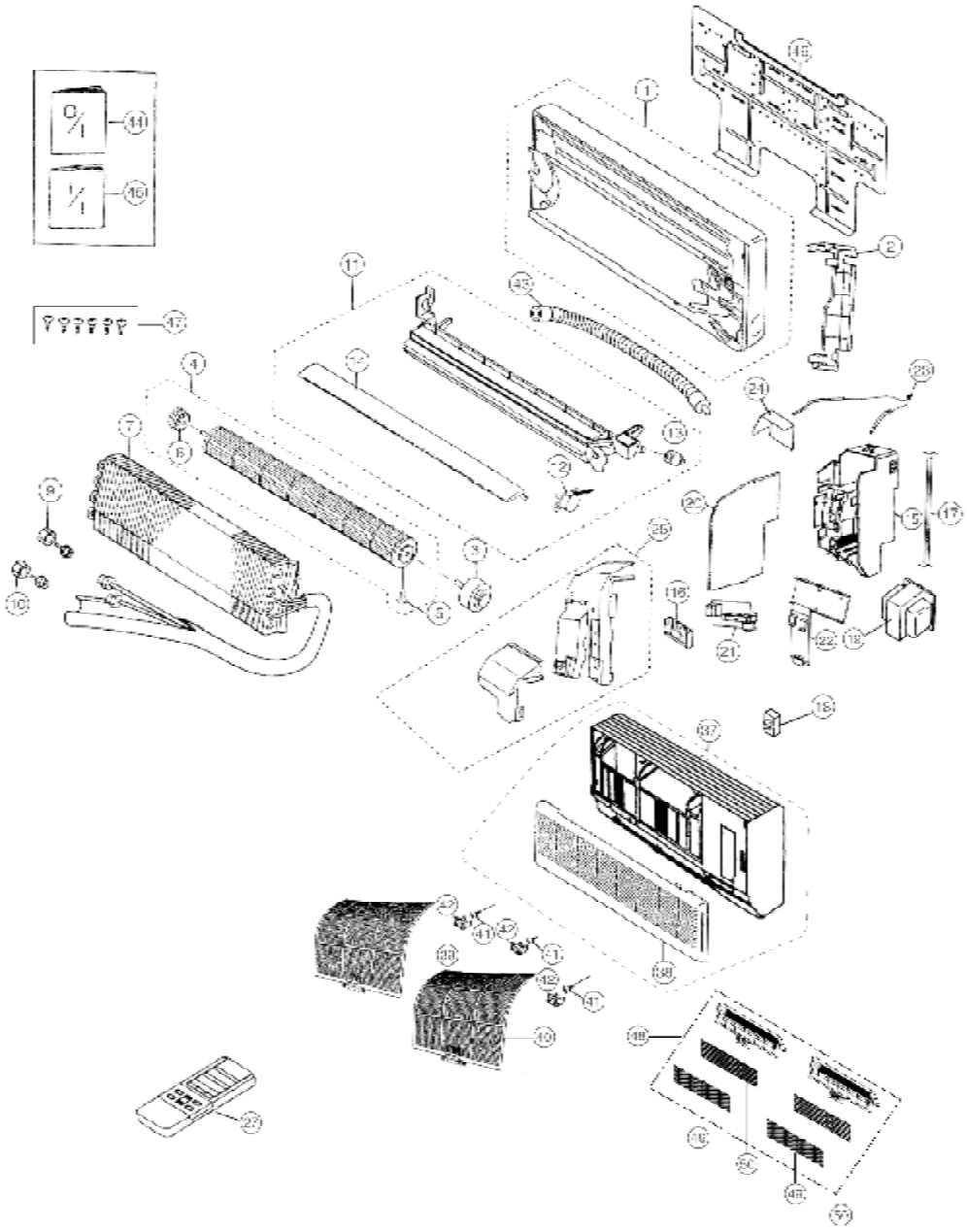


- **Piping Length Characteristic**



15. Exploded View

CS-C182KR / CS-C242KR



Note:
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

16. Replacement Parts List

<Model: CS-C182KR / CS-C242KR>

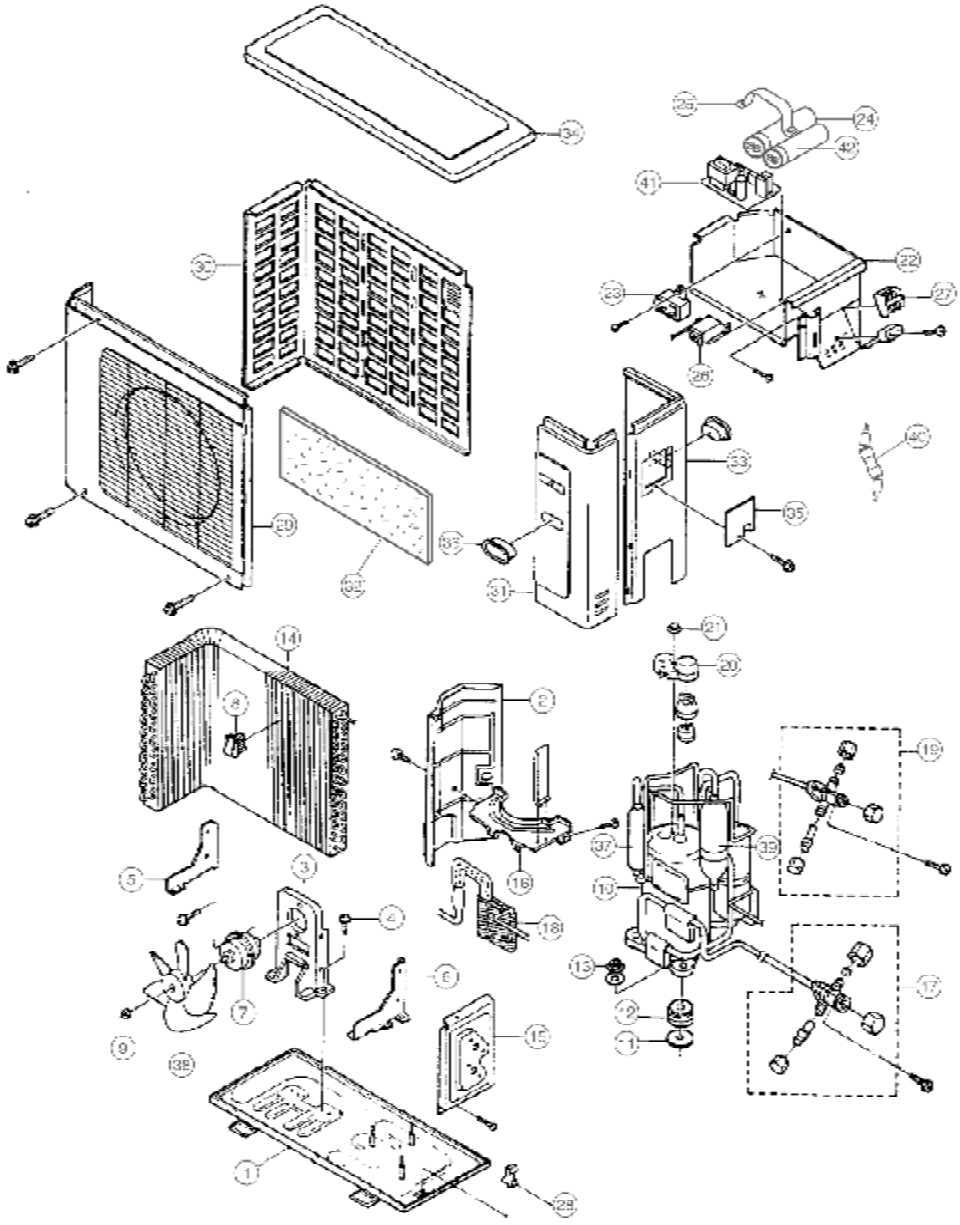
NO.	DESCRIPTION & NAME	Q'TY	CS-C182KR	CS-C242KR	REMARKS
1	CHASSY COMPLETE	1	CWD50C265	←	
2	CHASSY BACK COVER	1	CWD93956	←	
3	FAN MOTOR	1	CWA92270	CWA92287	O
4	CROSS FLOW FAN COMPLETE	1	CWH02C058	←	
5	SCREW - CROSS FLOW FAN	1	CWH4589304	←	
6	BEARING ASS'Y	1	CWH64K007	←	
7	EVAPORATOR	1	CWB30C222	CWB30C210	
9	FLARE NUT (1/4")	1	CWH6002140	←	
10	FLARE NUT (1/2") OR (5/8")	1	CWT25007 (1/2")	CWT25004 (5/8")	
11	DISCHARGE GRILLE COMPLETE	1	CWE20C574	←	
12	MOTOR - AIR SWING	1	CWA98267	←	O
13	TAP - DRAIN TRAY	1	CWH4612103	←	
14	VANE	1	CWE24443	←	
15	CONTROL BOARD	1	CWH10943A	←	
16	TERMINAL BOARD COMPLETE	1	CWA28C526	CWA28C525	O
17	POWER SUPPLY CORD	1	CWA20C2189	CWA20C2190	
18	SLIDE SWITCH	1	CWA04088	←	O
19	TRANSFORMER COMPLETE	1	CWA40C246	←	O
20	ELECTRONIC CONTROLLER	1	CWA741180	←	O
21	RECEIVER COMPLETE	1	CWA741287	←	O
22	RECEIVER COMPLETE HOLDER	1	CWD93957	←	
23	SENSOR COMPLETE	1	CWA50C582	←	O
24	CONTROL BOARD TOP COVER	1	CWH13433	←	
25	CONTROL BOARD FRONT COVER	1	CWH13C320	←	
27	REMOTE CONTROL COMPLETE	1	CWA75C560	←	O
37	FRONT GRILLE COMPLETE	1	CWE11C982	←	O
38	INTAKE GRILLE COMPLETE	1	CWE22C329	←	
39	AIR FILTER (LEFT)	1	CWD00232	←	O
40	AIR FILTER (RIGHT)	1	CWD00231	←	O
41	SCREW - FRONT GRILLE	3	XTT4+16C	←	
42	CAP - FRONT GRILLE	3	CWH52258	←	
43	DRAIN HOSE	1	CWH85284	←	
44	OPERARTING INSTRUCTIONS	1	CWF563263	←	
45	INSTALLATION INSTRUCTIONS	1	CWF612177	←	
46	INSTALLATION PLATE	1	CWH36152	←	
47	BAG COMPLETE - INSTALLATION SCREW	1	CWH82C194	←	
48	AIR PURIFYING FILTER COMPLETE	1	CWD00C1028	←	
49	AIR PURIFYING FILTER (CATECHIN)	2	CWD001014	←	O
50	AIR PURIFYING FILTER (DEODORIZING)	2	CWD001033	←	O

(Note)

- All parts are supplied from MACC, Malaysia (Vendor Code: 086).
- “O” marked parts are recommended to be kept in stock.

17. Exploded View

CU-C182KR / CU-C242KR



Note:
The above exploded view is for the purpose of parts disassembly and replacement.
The non-numbered parts are not kept as standard service parts.

18. Replacement Parts List

<Model: CU-C182KR / CU-C242KR>

NO.	DESCRIPTION & NAME	Q'TY	CU-C182KR	CU-C242KR	REMARKS
1	CHASSY ASS'Y	1	CWD50K514B	←	
2	SOUND PROOF BOARD	1	CWH15223	←	
3	FAN MOTOR BRACKET	1	CWD54145	←	
4	SCREW - FAN MOTOR BRACKET	6	CWH55101	←	
5	PARTICULAR PLATE F/M (L)	1	CWD90835	←	
6	PARTICULAR PLATE F/M (R)	1	CWD90836	←	
7	FAN MOTOR	1	CWA92272	CWA92271	O
8	HOLD FOR POWER SUPPLY CORD	1	CWH31114	CWH31043	
9	NUT - P. FAN	1	CWH56060	←	
10	COMPRESSOR	1	2JS350D3AA02	2JS464D3AA02	O
11	PACKING - COMP. MOUNT	1	CWB81047	←	
12	ANTI - VIBRATION BUSHING - COMP.	3	CWH50055	←	
13	NUT - COMP. MOUNT	3	CWH4582065	←	
14	FAN & TUBE CONDENSER	1	CWB32C287	CWB32C286	
15	HOLDER - COUPLING ASS'Y	1	CWH35113B	CWH35114B	
16	GUIDER COMPLETE	1	CWD90830	←	
17	3-WAY VALVE (GAS)	1	CWB01464	CWB01463	O
18	TUBE ASS'Y COMPLETE (STRAINER, CAPILLARY TUBE)	1	CWT02533	CWT02532	
19	3-WAY VALVE (LIQUID)	1	CWB01364	CWB01430	O
20	TERMINAL COVER	1	CWH171011	←	
21	NUT FOR TERMINAL COVER	1	CWH7080300	←	
22	CONTROL BOARD ASS'Y	1	CWH10K1012	←	
23	SELF HEALING CAPACITOR - FAN MOTOR	1	CWA31609	CWA31720	O
24	SELF HEALING CAPACITOR - COMPRESSOR	1	CWA31504	CWA31507	O
25	HOLDER - CAPACITOR	1	CWH301015	CWH301016	
26	THERMOSTAT	1	CWA15129	←	O
27	TERMINAL BOARD	1	CWA28C408	←	O
28	HOLDER - SENSOR	1	CWH32002	←	
29	CABINET FRONT PLATE COMPLETE	1	CWE06K034B	←	
30	CABINET REAR PLATE COMPLETE	1	CWE02096B	←	
31	CABINET FRONT PLATE COMPLETE	1	CWE06075B	←	
32	SOUND PROOF MATERIAL	1	CWG30894	←	
33	CABINET SIDE PLATE	1	CWE04111B	←	
34	CABINET TOP PLATE	1	CWE03101B	←	
35	CONTROL BOARD COVER	1	CWH13331A	←	
36	HANDLE	2	CWE16000E	←	
37	OIL SEPERATER ASS'Y	1	CWB16K028	CWB16K027	
38	PROPELLER FAN	1	CWH00K1001	←	
39	ACCUMULATOR ASS'Y	1	—	CWB13K048	
40	FUSE	1	XBACW067	←	O

NO.	DESCRIPTION & NAME	Q'TY	CU-C182KR	CU-C242KR	REMARKS
41	ELECTRONIC CONTROLLER	1	CWA742407	←	
42	SH CAPACITOR - COMPLETE	1	CWA31C1003	CWA31C1004	

(Note)

- All parts are supplied from MACC, Malaysia (Vendor Code: 086).

- "O" marked parts are recommended to be kept in stock.

19. Electronic Parts List

<Model: CWA741180>

SYMBOL	DESCRIPTION & NAME	PART NO.
D2	DIODE	B0EAKL000008
DB1	DIODE	A54CS1VB20E
ZD1	ZENAR DIODE	B0BA7R0A0014
ZNR1, ZNR2	DIODE CO. (ZNR)	A54C352
Q1	TRANSISTOR	A55C1741ASTR
Q2	TRANSISTOR	B1GACFJJ0007
Q3	TRANSISTOR	B1GACFGH0002
Q4, Q5	TRANSISTOR	A55C1740STPQ
IC1	INTEGRATED CIRCUIT	AD52D011F073
IC2	INTEGRATED CIRCUIT	A52C040
IC3	INTEGRATED CIRCUIT	B1HAGGF00002
IC4	INTEGRATED CIRCUIT	C3EADG000003
IC5	INTEGRATED CIRCUIT	A52C094
L1, L2	V-COIL	J0JYB0000007
SSR	TYRYISTOR	K6G1ABC00001
CR1, CR2, CR3	SURGE ABSORBER	J0HBJY000003
SW1, SW2	PUSH SWITCH	EVQQKH08Q
SW3	SLIDE SWITCH	K0D112A00064
RY-C	ELECTRO MAGNETIC RELAY	K6B1AGA00077
RY-H, RY-M	ELECTRO MAGNETIC RELAY	A00160
FUSE	FUSE	XBA2C31TR0
T. FUSE	TEMPERATURE FUSE	A16C204
X1	RESONATOR	A45ST800MG03
BZ1	BUZZER (SOUND GENERATOR)	A48039
C-FM	SH CAPACITOR	A31698

Note

- All parts are supplied from MACC, Malaysia (Vendor Code: 086)

<Model: CWA742407>

SYMBOL	DESCRIPTION & NAME	PART NO.
IC1	INTEGRATED CIRCUIT	C0BACA000005
Q3	TRANSISTOR	B1GACFGH0002
Q1, Q2	TRANSISTOR	A55C1741ASTR
D1, D2	DIODE	B0EAKL000008
ZNR1	DIODE (ZNR)	ERZVEAV511
FUSE HOLDER	FUSE HOLDER	K3GE1BA00015
DB1	DIODE	A54CS1VB20E
T1	TRANSFORMER	A40378
RY-L, RY-C	ELECTRO MAGNETIC SWITCH	K6B1AGA00070
FUSE	FUSE	XBA2C20TRO

Note

- All parts are supplied from MACC, Malaysia (Vendor Code: 086)

20. Electronic Circuit Diagram

How to use electronic circuit diagram

Before using the circuit diagram, read the following carefully.

* Voltage measurement
  Voltage has been measured with a digital tester when the indoor fan is set at high fan speed under the following conditions without setting the timer.
  Use them for servicing.
  Voltage indication is in Red at all operations.

	Intake air temperature	Temperature setting	Discharge air temperature	Pipe temperature
Cooling	27°C	16°C	17°C	15°C

* Indications for resistance
  a. K....kΩ M....MΩ
  W...watt Not indicated....1/4W
  b. Type
  Not indicated.....carbon resister
  Tolerance±5%
  .....metal oxide resister
  Tolerance±1%

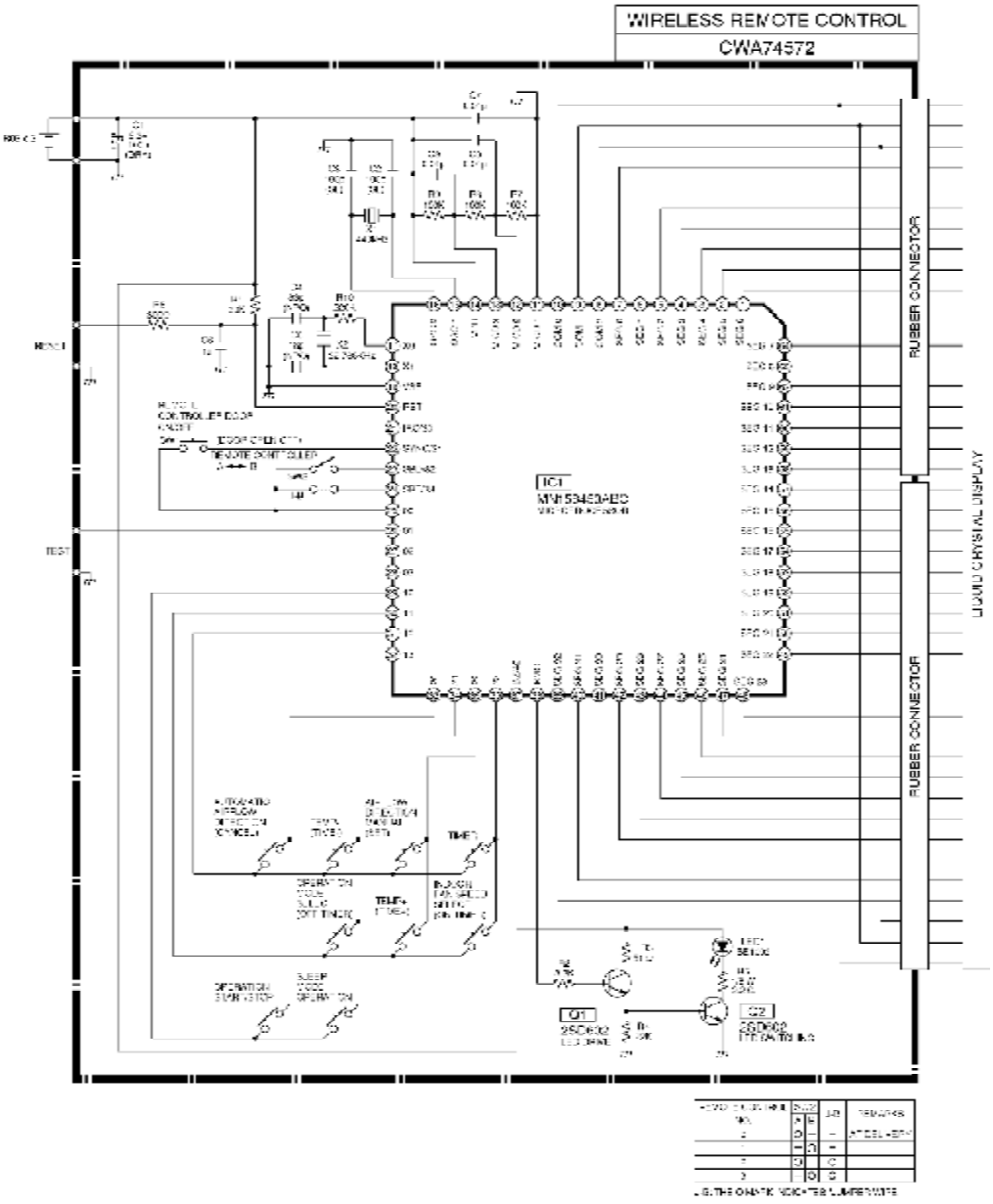
* Indications for capacitor
  a. Unit μ....μF P....pF
  b. Type Not indicated....ceramic capacitor
  (S).....S series aluminium electrolytic capacitor
  (Z).....Z series aluminium electrolytic capacitor
  (SU).....SU series aluminium electrolytic capacitor
  (P).....P series polyester system
  (SXE).....SXE series aluminium electrolytic capacitor
  (SRA).....SRA series aluminium electrolytic capacitor
  (KME).....KME series aluminium electrolytic capacitor

* Diode without indication.....MA165
※ Circuit Diagram is subject to change without notice for further development.

TIMER TABLE

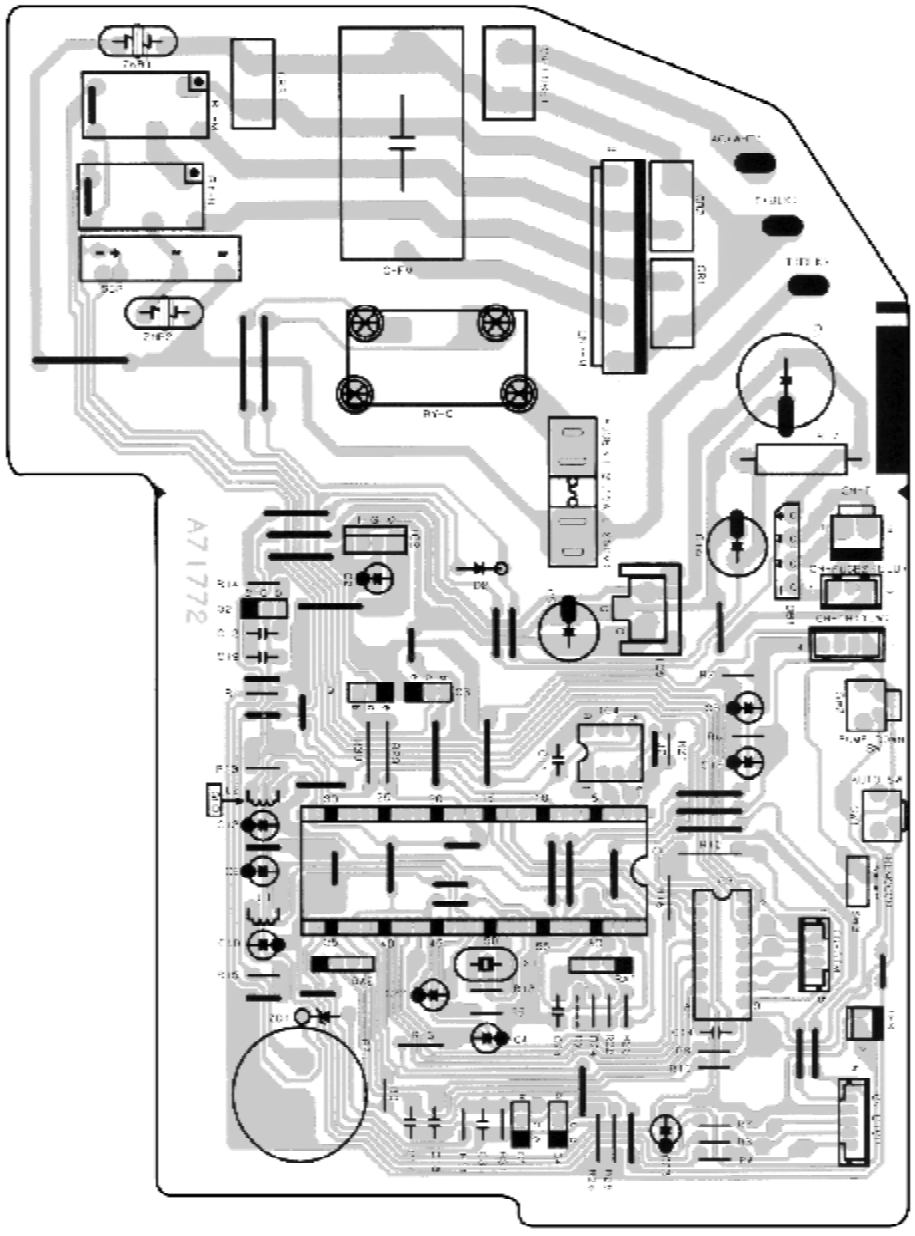
Name		Time	Test mode (When test point Short-circulated)	Remarks
Sleep Mode Waiting		1 hr.	6 sec.	
Sleep Mode Operation		8 hrs.	48 sec.	
Real Timer		1 hr.	1 min.	
		10 min.	10 sec.	
		1 min.	1 sec.	
Time Delay Safety Control		2 min. 58 sec.	0 sec.	
Forced Operation		60 sec.	0 sec.	
Time Save Control		7 min.	42 sec.	
Anti-Freezing Control		4 min.	0 sec.	
Soft Dry	Off	6 min.	36 sec.	SOFT DRY : 10 min. operation
	On	10 min.	60 sec.	Comp. ON
Deodorizing Control	Cooling	40 sec.	4 sec.	Comp. ON
		70 sec.	7 sec.	Comp. ON
		20 sec.	2 sec.	Comp. OFF
	Soft Dry	180 sec.	18 sec.	Comp. ON
		40 sec.	4 sec.	Comp. OFF
		360 sec.	36 sec.	Comp. ON 5 min. and above
Comp./ Fan motor Delay Timer		1.6 sec.	0 sec.	
Intake Air Anti-Freezing Prevention		16 min.	9.6 sec.	
Outdoor Fan Delay Timer		1.6 sec.	0 sec.	

20.1. REMOTE CONTROL

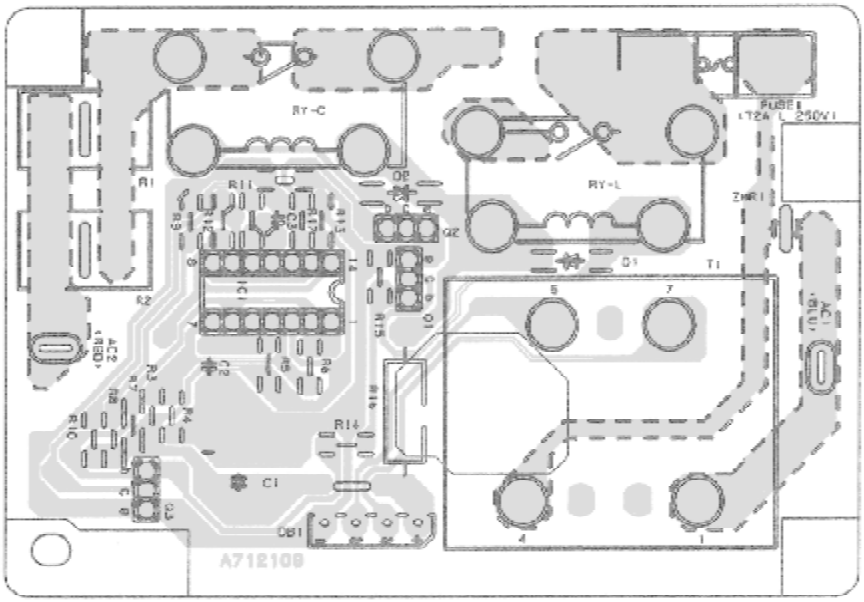


20.2. PRINT PATTERN

INDOOR UNIT PRINTED CIRCUIT BOARD



SOFT STARTER PRINTED CIRCUIT BOARD



[MACC] Printed in Malaysia /